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Original Articles

A PLEA FOR MORE CONSERVATIVE TREATMENT OF SARCOMA OF THE LONG BONES *

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Two years ago[1] I published a paper on sarcoma of the long bones based on seventy-one personal observations. In this paper I gave a brief summary of the results of modern methods of treatment of sarcoma of the long bones. These results were by far the most disappointing in the whole field of modern surgery. Taking the femur for example, Butlin found 68 cases of sarcoma of the femur (subperiosteal), in which amputation at the hip-joint or just below the trochanter had been performed, and only one patient remained well beyond three years, which is sufficient proof of the practical failure of surgery alone in this condition.

In my former paper[1] I proposed a new method of treatment with the hope, not only of saving more lives, but, in a certain proportion of cases, of saving the limbs as well. The number of cases so treated up to that time was far too small to be convincing. The older cases have now been under observation for a longer time, and I have been able to add nineteen new cases, making a total of ninety cases of sarcoma of the long bones, which forms the basis of the present study.

My results in the cases treated by the older and more radical methods of exarticulation or high amputation correspond very closely to those of the gloomy statistics of Butlin. The six patients on whom I performed amputation at the hip-joint for sarcoma of the femur, although they all recovered from operation, died, with one exception, from local or general recurrence within a few months to a year and a half after operation, and the sixth case was not traced. Dr. Nancrède,[2] of Ann Arbor, has performed fifteen amputations at the hip-joint for sarcoma of femur, with not a single cure.

The results in cases of sarcoma of the humerus have been nearly as bad.

I cannot agree with the opinion of Dr. Bloodgood, that myeloid sarcoma of the long bones is comparatively benign, nor do I believe that it is possible to make a fairly accurate prognosis from the microscopic findings in the various types of sarcoma of the long bones. While it is true in a general way that infiltrating periosteal sarcomas of the femur and humerus are the most malignant of all known tumors, a careful analysis of any extensive statistics will show that the final results in the myelogenous or central sarcomas in these particular bones are but little better than in the periosteal type. This has been my experience and is strikingly confirmed by the results at Bruns' clinic, published by O. Kocher.[3]

While in carcinoma it is not possible to consider a patient cured who has remained well less than three years, the after-histories of collected cases of sarcoma show that in sarcoma of the long bones, if recurrence does occur, it usually takes place within a comparatively short time, in a very large percentage within the first six months and a very small percentage after the first year. There are a few exceptional cases in which recurrence has taken place a long period after operation. Nasse reports two cases recurring after periods of four years eight months and two years four months; Reinhardt published three cases which recurred two, three and four years after operation. Borck reports a case of sarcoma of the humerus, recurrent after eleven years.

I have observed one case of myeloid giant-celled sarcoma of the tibia in which the patient died of lung metastases five years after operation, and one case, primary in the bones of the foot, recurrent in the humerus twelve years afterward.

KOCHER'S STATISTICS OF CASES AT BRUNS' CLINIC

That the prognosis of sarcoma of the long bones depends, as Bloodgood believes, largely on the microscopical type of growth, being very good in myelogenous and extremely bad in periosteal sarcoma, is not confirmed by the very carefully prepared statistics of O. Kocher[3] covering ninety-three cases observed at Bruns' clinic from 1860 to 1903. Of a total of 93 cases of sarcoma of the long bones, 28 have to be excluded because the origin of the sarcomas is not definitely stated in the histories. This leaves 65 cases, of which 33 were of myeloid and 32 of periosteal origin. Of the 33 cases of myelogenous sarcoma observed, 4 have to be excluded because they were either too far advanced for operation or the patients refused it. Of the remaining 29 cases, 17 were treated by amputation, 7 by exarticulation, 4 by resection.

* Read in the Section on Surgery of the American Medical Association, at the Sixtieth Annual Session, June, 1909. Owing to lack of space the article is here abbreviated. It appears in full in the Transactions of the Section and the author's reprints.

1. Coley, W. B.: Ann. Surg., March, 1907.

2. The terrible malignancy of sarcoma, not only of the long bones, but of other bones as well and the disheartening prognosis from operative treatment, has never been more strongly emphasized than by Dr. C. B. G. De Nancrède, of Ann Arbor, Mich., in his presidential address before the meeting of the American Surgical Association in Philadelphia, on June 3, 1909. After a most careful examination of all the recorded cases in the literature, he was able to find 66 cases of primary excision of the scapula for sarcoma which were reported with sufficient detail for the purpose of a study. In this series of cases only one patient was known to have been permanently cured, and this one, as Dr. Nancrède told me after the meeting, he had then just learned, would have to be excluded, as an interscapular thoracic amputation was performed instead of a simple excision of the scapula. Dr. Nancrède stated that these results had been entirely contrary to what he had anticipated in the beginning of his investigations—that he had had no idea that the prognosis was so absolutely bad.

3. Kocher, O.: Beitr. z. klin. Chir., 1906, l, 118.

Of the 17 cases of myeloid sarcoma treated by amputation, the final results are known in only 11, namely:

Case 1.—Femur; amputation; death fifteen years afterward, of another trouble.

Case 2.—Tibia; amputation of femur; death four and one-quarter years later, from pleurisy; "probable recurrence."

Case 3.—Tibia; amputation; death twelve days after operation.

Case 4.—Femur; amputation; death one month later, due to metastases of liver, lung and dura mater.

Case 5.—Tibia; amputation of femur; death within two months, lung metastases.

Case 6.—Tibia; amputation of femur; death within two months, lung metastases.

Case 7.—Femur; recurrence within seven months in lymph-glands and lungs; death within nine months.

Case 8.—Tibia; amputation of femur; death after eleven months, of metastases.

Case 9.—Femur; amputation; death within two years; tumor in arm.

Case 10.—Tibia; amputation of femur; death within five years; metastases in spine.

Case 11.—Tibia; scraping; recurrence within one month; amputation of femur; death after twenty years; suicide.

The foregoing abstracts show four patients to have remained free from recurrence from four and one-quarter to twenty years; two of these are known to have died of other diseases.

In the seven cases of myeloid sarcoma of the extremities in which exarticulation was performed the results were as follows:

Case 12.—Femur; exarticulation hip-joint; death on day of operation from collapse.

Case 13.—Femur; exarticulation; death same day; collapse.

Case 14.—Femur; first amputation; two years later exarticulation for recurrence; death on day of operation, collapse.

Case 15.—Humerus; exarticulation; recurrence in two months; death within four and one-half months; metastases.

Case 16.—Humerus; exarticulation; death one-half year later of local return.

Case 17.—Humerus; exarticulation; recurrence in two months; death in six and one-half months, of lung metastases.

Case 18.—Humerus; exarticulation; death two years later of recurrence.

It will be seen that all of these patients died either in direct consequence of the operation, in collapse or of recurrence within a short time after operation.

In the four cases in which the conservative operation was done the results were as follows:

Case 19.—Radius; resection of radius and ulna; patient well twenty-seven years without recurrence.

Case 20.—Ulna; resection; patient well, seventeen years without recurrence.

Case 21.—Tibia; resection of tibia and fibula; death three weeks later from sepsis.

Case 22.—Fibula; resection; amputation of femur one year later for local recurrence.

In another case (23), a myelogenous sarcoma of the tibia, the tumor was curetted out; the patient was well three years later.

Of the 32 cases of periosteal sarcoma of the extremities, three have to be excluded for various reasons, leaving 29. In 25 of these amputation was performed, in 2 exarticulation, and in 1 each, resection and excision.

Of the patients subjected to amputation, four remained free from recurrence upward of three years; two, three months and nine months, respectively, too recent to be considered. All of the remainder have died of the disease despite operation.

Case 24.—Femur; amputation; patient living six years later.

Case 25.—Fibula; amputation; patient living and free from recurrence eight years later.

Case 26.—Femur; amputation; patient free from recurrence four years later.

Case 27.—Tibia; amputation of femur; patient free from recurrence three and one-quarter years later.

Case 28.—Femur; amputation; patient free from recurrence nine months later.

Case 29.—Tibia; first extirpation, then amputation for local recurrence; no recurrence three months later.

Case 30.—Tibia; amputation of femur; death within sixteen days from metastases in lung.

Case 31.—Humerus; amputation; death within eighteen months.

Case 32.—Tibia; amputation of femur; death within four months.

Case 33.—Femur; amputation; death four months later from lung metastases.

Case 34.—Femur; amputation; death from metastases.

Case 35.—Tibia; amputation of femur; death within six months of "pleurisy."

Case 36.—Femur; amputation; death within nine months of lung metastases.

Case 37.—Tibia; amputation of femur; death six months later.

Case 38.—Tibia; amputation of femur; death within six months of lung metastases.

Case 39.—Fibula; amputation; death one and a half years later.

Case 40.—Femur; amputation; death after one year from local recurrence.

Case 41.—Femur; amputation; death within one and a half years of "consumption."

Case 42.—Radius, amputation antebrachial; death, two and a half years later from lung metastases.

Case 43.—Humerus; amputation; death after one and a years.

Case 44.—Tibia; amputation of femur; death from local recurrence within ten months.

Case 45.—Tibia; amputation of femur; death within one and a quarter years, local recurrence.

Case 46.—Radius; antebrachial amputation; death within four and a half months.

Case 47.—Tibia; amputation of femur; death within two and a half months.

In two patients on whom exarticulation was done both died within three months; one had a sarcoma of the femur, the other of the humerus. Also the two patients treated by conservativce methods, i. e., resection and extirpation, died, one, at the end of seven months, of local recurrence; the other, twelve days after operation, of tetanus.

Summing up, we find that in 53 cases of sarcoma of the long bones there were 9 cures, or 17 per cent., after three years. Of these, 5 were myelogenous and 4 periosteal sarcoma. In the former, 2 cures resulted after amputation; 2 after resection and 1 after curetting, while in periosteal sarcoma cures were obtained only after amputation. Of these cures only three referred to the femur and none to the humerus, which agrees fully with the experience of Butlin, that sarcoma of the femur and humerus are among the most hopeless of all conditions. No less than eight of the 33 cases of myeloid or central sarcoma died of metastases.

DIAGNOSIS

While I do not think it necessary to take up in a general way the question of the diagnosis of sarcoma of the long bones, as it was rather fully discussed in my earlier

papers,[4] there are certain points on which further experience has forced me to lay greater emphasis. These I will consider briefly:

About two years ago I was inclined to regard the *x*-ray photograph of but minor help in making the early diagnosis of sarcoma of the long bones. I now believe that there are certain conditions in which it is of greater aid than I at that time realized. One of these conditions is myositis ossificans, which, in the two instances which have come under my personal observation, very closely simulated sarcoma. In both cases the *x*-ray plates helped me very much in making the differential diagnosis of this condition from sarcoma. These cases are of sufficient interest to warrant a more detailed report. The first case I referred to briefly in my paper, read before the American Orthopedic Association, Washington, May 8, 1907, was as follows:

The patient, a boy of 19, had always been in good health up to November 17, 1906, when he received an injury to his right thigh while playing football. There was no external evidence of the injury noticeable that night, but the next day there was some swelling; two to three days later the leg became stiff, and the stiffness seemed to be confined to the region of the quadriceps muscle, greatly limiting the flexion at the knee. There was no pain at any time, but the swelling steadily increased in size. The patient at first believed the swelling to be in the muscle rather than the bone. The swelling slowly began to get hard and contract; the patient's general condition remained unimpaired. He was examined by a number of prominent physicians and all agreed that the trouble was sarcoma and amputation was advised. My opinion was asked by letter, and I replied that if the trouble was sarcoma I would advise a course of the toxin treatment before amputation. Thereupon the toxins were administered for about four weeks with little reaction and no apparent effect on the size of the tumor. I declined to give further advice without seeing the patient, and he consulted me early in April, 1907. Physical examination showed a tumor situated in the middle and lower thirds of the anterior portion of the shaft of the left femur. The consistency of the tumor was extremely hard, much harder than usual in periosteal sarcoma. The *x*-ray photograph showed a sharp line of demarcation between the tumor and the shaft of the femur along the periosteal line, with no indentations in the periosteum. I made the diagnosis of myositis ossificans, which was confirmed by exploratory operation under ether. I advised no further treatment. The patient has continued in good health up to the present time, two and a half years later.

The second case came under my observation a short time ago.

The patient, Miss A., aged 26, had always been in good health; negative family history. Three years ago, while tobogganing she received a very severe blow on the lower and outer part of the left thigh, just above the knee. After the immediate effects of the contusion had subsided she noticed nothing unusual until about two years later, when, on bathing, she saw that the left thigh just above the knee was somewhat larger than the right. There was no pain; no soreness, no lameness, the increase in size being the first sign she noticed. She consulted a physician who found a slight bony enlargement above the outer condyle of the left femur and an *x*-ray photograph was taken at that time, which showed a small bony tumor projecting about half an inch beyond the normal border of the shaft of the femur, not extending to the joint. This increased in size very slowly, was not painful and caused her no trouble. On Feb. 9, 1909, the patient consulted a very prominent surgeon of the middle West, who pronounced it subperiosteal sarcoma and advised hip-joint amputation. She was made very nervous by this decision and went abroad for two months to get in better physical condition. On her return, on May 3, she again consulted another very prominent physician who stated that she was suffering from a fibrosarcoma of the femur of periosteal origin. He stated that there was no possible doubt of the diagnosis and advised immediate amputation below the trochanter and urged this being done without a day's delay. She came to me for advice on May 5, 1909. Physical examination showed the patient in good general condition; examination of the left thigh showed a hard, bony tumor in the lower third of the left femur, smooth in outline, extending upward about two and a half inches, most marked on the outer side. Although it extended apparently nearly around the bone, the skin was perfectly normal in appearance and there were no enlarged veins. Comparison between the *x*-ray taken a year ago and that of a few days ago showed some increase in size and extension across toward the other side of the femur; no involvement of the joint.

In both these cases there was a well-defined sharp line of demarcation between the bone and the tumor, differing strikingly from the irregular indentation almost always present in the case of sarcoma. The consistency of the tumor, too, was much harder and more bony in character than in true sarcoma. I believed the tumor to be some type of myositis ossificans originating from the trauma, and not sarcoma. I advised an exploratory incision under general anesthesia and removal of a section of the tumor for microscopic examination. This was done on May 7. An incision three inches in length was made over the external condyle, the most prominent part of the tumor; on cutting through the fascia overlying the muscles and separating the latter, no periosteum could be recognized, a hard, bony tumor was found in close proximity to, almost infiltrating the muscles. A portion of this was removed with a chisel. Macroscopically it had every appearance and the consistence of cancellous bone tissue, deep red in color and in no way resembling the grayish-white appearance of sarcoma. This was sent to Dr. James Ewing, professor of pathology at Cornell University, who, after decalcification, made a careful examination and reported as follows:

"Seven different portions of the material received are under examination. In none of them is there the slightest trace of any form of sarcoma. The tissue shows chronic osteitis and myositis, such as commonly arises after traumatism to the bone or periosteum. The changes in the muscle are not those typical of myositis ossificans and yet new bone appears to be forming in close proximity to the atrophying muscle. I should prefer to give the diagnosis of chronic formative osteitis."

While I am a firm believer in the local infectivity of cancer of all varieties and for many years have emphasized the importance of taking precautions against infecting freshly cut surfaces during operations for removal of malignant tumors, or in exploratory operations for diagnostic purposes, there is at present a tendency to overestimate this danger. Although I cannot say that there is no danger from such exploratory incisions, I believe that such danger is infinitely less than the danger of waiting until the clinical diagnosis of sarcoma, especially of the long bones, has become certain.

This danger, however, by no means warrants the amputation of a limb, as might have been done in the two cases I have narrated, had not an exploratory operation been performed. In both cases the positive diagnosis of sarcoma had been made by surgeons of large experience.

It might be said, on the other hand, that if an exploratory operation has to be performed, the patient should be prepared for the amputation should examination of frozen sections made on the operating table confirm the diagnosis. There are two objections, however, to this procedure. 1. The highest authorities in pathology are unwilling, in many cases, to make a positive diagnosis from frozen sections. 2. Such a procedure would have been impossible in the two cases which I have described, for the reason that no examination at all could be made without decalcification, which requires upward of a week before sections can be made.

4. Coley, W. B.: Surg. Gynec. and Obst., February, 1908.

FINAL RESULTS OF SARCOMA OF THE LONG BONES PERSONALLY OBSERVED

FEMUR CASES (FORTY-SEVEN)

CASE 1.—Female; periosteal hip-joint amputation; patient not traced beyond a few months.

CASE 2.—Female; myeloid; hip-joint amputation; metastases; death in one and a half years.

CASE 3.—Male; periosteal; hip-joint amputation; death six months later.

CASE 4.—Male; myeloid; hip-joint amputation; death from metastases eight months later.

CASE 5.—Female; periosteal; hip-joint amputation; death from metastases within eight months.

CASE 6.—Male; myeloid amputation upper third; recurrence in stump; hip-joint amputation for recurrence; toxins before and after second operation; death six months later, from general metastases.

CASE 7.—Female; periosteal; hip-joint amputation; metastases; death within six months.

CASE 8.—Female; myeloid; hip-joint amputation; patient well five years later.

CASE 9.—Male; Periosteal; hip-joint amputation; recurrence; toxins; metastases; death one year later.

CASE 10.—Male; periosteal; hip-joint amputation; toxins for three months after operation; recurrence; death one year later.

CASE 11.—Male; periosteal; hip-joint amputation; recurrence; toxins; not traced; patient probably died.

CASE 12.—Male; periosteal; spindle-celled; middle third; amputation below trochanter; followed by toxins; later hip-joint amputation; recurrence; metastases; death two years later.

CASE 13.—Female; myelogenous; mixed-celled; high amputation; death four months later; metastases in lungs.

CASE 14.—Female; myeloid, round-celled, giant-celled; amputation below trochanter; toxins after operation; patient gained thirty-nine pounds; death, from metastases, one and a half years after operation.

CASE 15.—Female; myeloid, round-celled; amputation below trochanter; toxins for four months after amputation; patient gained thirty pounds in weight; well at present, three years afterward.

CASE 16.—Female; myeloid, round-celled; amputation below trochanter; toxins for four months after operation; patient well at present, three years afterward.

CASE 17.—Male; periosteal, round-celled; hip-joint amputation; recurred in six months; toxins three weeks; patient died six months later.

CASE 18.—Male; myeloid, round-celled; amputation below trochanter; toxins after operation for six months; patient well at present, three years afterward.

CASE 19.—Male; doubtful, probably periosteal; round-celled; too extensive for amputation; toxins for a few weeks with little effect.

CASE 20.—Male; periosteal; amputation advised but refused; no treatment; patient not traced.

CASE 21.—Female; periosteal; round-celled; hip-joint amputation advised; refused; patient recovered under some vegetable compound from a cancer specialist; well five years later. Microscopical section made by the pathologist at the Norwegian Hospital; specimen lost; diagnosis doubtful.

CASE 22.—Myeloid, round-celled, giant-celled; tumor of enormous size, extended into groin and iliac fossa; affected thigh measured seven inches more than other; growth too extensive even for hip-joint amputation; toxins six weeks; rapid improvement; large masses of tumor sloughed out; tumor nearly disappeared; patient gradually grew weaker and died within two months from time treatment was begun. (Case of Dr. Foote, treated under my direction.)

CASE 23.—Male; periosteal, round-celled; amputation below trochanter; metastases in face and head four months later; died seven months after operation.

CASE 24.—Female; periosteal, round-celled; inoculation with living cultures of erysipelas, July, 1891; no attack of erysipelas produced; rapid progress of the disease; death four months later.

CASE 25.—Female, aged 21 months; tumor periosteal, round-celled, involving ilium; no treatment; death three months later.

CASE 26.—Female; myeloid, round-celled; too far advanced for amputation; toxins a few weeks; little effect; death a few months later.

CASE 27.—Female; periosteal, round-celled; hip-joint amputation (Walker); patient reported well ten years afterward.

CASE 28.—Female; doubtful; too far advanced for hip-joint amputation; toxins four weeks; slight improvement; patient not traced.

CASE 29.—Male; periosteal, round-celled; amputation at hip-joint advised and refused; *x*-ray, followed by extensive metastases in the pectoral and iliolumbar regions; recovery under systemic injections with the toxins; patient well at present, seven years later.

CASE 30.—Female; myeloid, round-celled, giant; tumor too extensive even for hip-joint amputation. Microscopic examination by Dr. Mandelbaum, pathologist, Mount Sinai Hospital, confirmed by Dr. T. Mitchell Prudden, professor of pathology, College of Physicians and Surgeons. Toxins by Dr. Elsberg for three months; final recovery; spontaneous fracture united; patient well six years later.

CASE 31.—Female, aged 34 years; upper third of femur; no microscopic examination; toxins; patient improved; not traced.

CASE 32.—Male, aged 10 years; periosteal, small round-celled; exploratory operation; mixed toxins given for nine months; almost complete disappearance of the tumor of the femur; metastases developed in the brain; large retrobulbar tumor, causing death a year later.

CASE 33.—Male; periosteal; operation refused; toxins a few weeks; no improvement; patient not traced.

CASE 34.—Male; periosteal; no microscopic examination; amputation advised; refused; patient not traced.

CASE 35.—Male; myeloid, round-celled; exploratory operation by Dr. L. S. Pilcher; amputation of thigh advised but refused; microscopic examination by Dr. George Biggs, pathologist of the New York Hospital; slow disappearance of growth following curetting; patient well two years.

CASE 36.—Male; periosteal, small round-celled; exploratory operation; toxins two weeks; temporary improvement; amputation below trochanter two weeks later, followed by toxins; local recurrence; lung metastases; death four months from date of the blow which, apparently, was the exciting cause of the tumor.

CASE 37.—Female, aged 80; tumor periosteal, round-celled; partial excision of tumor; very rapid growth; toxins for a few weeks; no effect; death within four months.

CASE 38.—Male; myeloid; no operation; toxins; temporary improvement; not traced.

CASE 39.—Male; periosteal, involving ilium; no operation possible; toxins a few weeks; no improvement.

CASE 40.—Male; chondrosarcoma; inoperable; toxins for three weeks; slight improvement; not traced.

CASE 41.—Male; periosteal, round-celled; partial operation; toxins; temporary improvement; death following extension of the disease.

CASE 42.—Female; periosteal; inoperable, enormous size; toxins administered under my direction for about two months; no improvement; death from exhaustion.

CASE 43.—Male; periosteal; middle and upper thirds; toxins for four months; marked improvement; finally spontaneous fracture; amputation at hip-joint by another surgeon; patient recovered; well at present, a year and a half later.

CASE 44.—Female; periosteal; extremely rapid growth, following trauma; toxins two weeks; no improvement; amputation below trochanter; toxins after operation; death from lung metastases four months from receipt of injury.

CASE 45.—Female; periosteal, round and spindle-celled; amputation below trochanter; toxins November, 1909, continued with intervals up to the present time; patient in perfect health August, 1909.

CASE 46.—Male; periosteal; round-celled, inoperable; toxins; temporary improvement.

CASE 47.—Male; periosteal, round-celled; middle and upper third; partial excision of tumor; curetting; then put upon

the toxins for two periods of about six weeks each; severe reactions; circumference of thigh diminished two inches under treatment; tumor practically disappeared; patient has been working since; practically well, a year and a half later. Treatment carried out by Dr. Wilmoth of Louisville, Ky.,[5] under my direction.

TIBIA CASES (FIFTEEN)

CASE 48.—Female; myeloid, round-celled; recurrent after three conservative operations in spite of toxins; amputation; toxins after operation; patient well a year and half later.

CASE 49.—Female; periosteal, round-celled; vascular tumor; amputation urged, but refused; patient not traced.

CASE 50.—Female; myeloid; amputation lower third of thigh; patient well ten years later.

CASE 51.—Male; periosteal, spindle-celled; mixed toxins before operation in the hope of saving limb; entire disappearance; patient well ten and one-half years later.

CASE 52.—Male; periosteal, round-celled; amputation of thigh; patient not traced.

CASE 53.—Female; myeloid, round-celled, giant-celled; rapid recurrence after two conservative operations; mixed toxins combined with *x*-ray for a short time; under six months' treatment the tumor disappeared; patient well at present, four years later.

CASE 54.—Male; myeloid, round-celled; toxins three months; no improvement; patient not traced.

CASE 55.—Female; doubtful, spindle-celled; amputation above knee; metastatic recurrence in spine; death within seven months.

CASE 56.—Male; adult; middle and upper thirds; amputation advised; refused; patient not traced.

CASE 57.—Male; adult; myeloid; amputation advised; refused; no treatment; patient not traced.

CASE 58.—Male; myeloid, round-celled; amputation of upper third; local and general recurrence, pleura and rib, four months later; died six months after operation.

CASE 59.—Female; adult; round-celled amputation above knee; patient not traced.

CASE 60.—Female; myeloid, round-celled with giant cells; amputation middle of thigh; (Bull) metastases six months later; death within a year; toxins used after generalization with little effect.

CASE 61.—Male; aged eleven months; no microscopical examination, but clinical diagnosis beyond doubt; tibia and fibula; general metastases within four weeks after original trauma; death six weeks later.

CASE 62.—Female; myeloid; tibia and fibula; very rapid growth; amputation four weeks after first noticed; joint involved; toxins begun four weeks after operation, given for a short time; patient died of metastases one year later.

HUMERUS CASES (FIFTEEN)

CASE 63.—Female; amputation; recurrence in five months.

CASES 64.—Male; periosteal, round-celled; amputation shoulder-joint (Bull); recurrence within five weeks; toxins; tumor disappeared; patient died five months later of metastases.

CASE 65.—Male; periosteal, round-celled; amputation; metastases within a few weeks with development of similar growth in opposite humerus; patient died a few weeks later.

CASE 66.—Male; myeloid, round-celled; amputation shoulder-joint (Bull); metastases, other humerus and lungs; death a year after first operation.

CASE 67.—Male; periosteal (no microscopic examination); amputation advised, but refused; patient died ten months from beginning of first symptoms.

CASE 68.—Male; periosteal, round-celled; tumor of four months' duration, enormous size; amputation of shoulder-joint, portion of clavicle and scapula; developed metastases in three months; death seven months from beginning of disease.

CASE 69.—Female; chondrosarcoma; excision of tumor; recovery from operation; patient not traced.

CASE 70.—Male; adult; upper end of humerus; no microscopic examination; doubtful whether periosteal or central; amputation of shoulder-joint advised; refused; patient not traced.

CASE 71.—Male; periosteal, round-celled; inoperable; no treatment; death in five months from beginning.

CASE 72.—Female; periosteal, round-celled; upper end; preliminary use of the toxins; temporary improvement; amputation advised; refused; patient left hospital and died three months later.

CASE 73.—Female; periosteal; amputation at shoulder-joint advised; operation performed by another surgeon; death from shock.

CASE 74.—Female; myeloid, round-celled; partial operation, removal of head of bone, part of coracoid process glenoid cavity; disease not completely removed; mixed toxins after operation; entire recovery; patient shown before Suffolk County Medical Society November, 1908—ten years later—in perfect health; perfect use of arm. (Case of Dr. J. Babst Blake.)

CASE 75.—Male; periosteal; exarticulation (Dr. Goodman, August, 1907); mixed toxins given after operation for five weeks; patient gained 9 pounds and remained well for six months; then showed evidence of lung metastases; died a few months later.

CASE 76.—Male; periosteal, round-celled; enormous size; exarticulation by Dr. Brackett, Boston; toxins before and after operation; patient well at present, sixteen months later.

CASE 77.—Female; periosteal, round-celled; preliminary use of toxins for two weeks; slight improvement; operation advised; at first refused; performed two weeks later; sarcomatous thrombi present in the subclavian vein, severed beneath clavicle; axillary glands extensively involved; local recurrence shortly after operation in pectoral region; disappeared under toxins; patient regained normal weight and strength; eight months later developed metastases in lungs and pleura; rapid decline; death in a few weeks.

RADIUS CASES (FIVE)

CASE 78.—Female; periosteal; lower third; operation refused; patient not traced.

CASE 79.—Female; meyloid, round-celled, giant; lower third; two conservative operations by Dr. Hibbs, first in 1900; second January, 1902; amputation advised by several surgeons; but refused; patient alive and well at present, seven years later.

CASE 80.—Female; periosteal, round-celled; lower end; amputation September, 1906; toxins three months after operation; patient well at present, nearly three years later.

CASE 81.—Male; 70 years old; spontaneous fracture May, 1907; patient shortly afterward developed numerous bony tumors in the skull; death three months later; no autopsy; toxins given for a few weeks, with little effect. Tumor possibly hypernephroma or myeloma. The clinical diagnosis was for cancer.

CASE 82.—Female; myeloid; lower end; spontaneous fracture; curetting by Drs. Hartley and Pool; amputation strongly advised, but refused; toxins for five weeks; patient perfectly well at present, sixteen months later.

FIBULA CASES (THREE)

CASE 83.—Female; spindle-celled; upper end, joint not involved; toxins six weeks before operation; tumor decreased in size; improvement temporary; amputation; death from lung metastases two years later.

CASE 84.—Female; (?); upper end of fibula; amputation advised; refused; patient not traced.

CASE 85.—Male; periosteal, round-celled and spindle-celled; upper third of fibula; excision July, 1908, by Dr. Gerster; local recurrence eleven months later; toxins six weeks; temporary improvement; patient not traced.

ULNA CASES (TWO)

CASE 86.—Female; periosteal; lower end ulna; no treatment; metastases in lung and pleura; died less than one year from beginning of symptoms.

CASE 87.—Male; periosteal; spindle-celled; middle, following green-stick fracture; amputation middle of arm in 1899 (Tully Vaughan of Washington); remained well for seven years; then recurrence in abdomen; October, 1906, entire abdomen filled with tumors; marked distention; mixed toxins begun in November, 1906; very marked decrease in size of

5. This case was not observed personally by me but was treated under my direction.

tumors; nearly disappeared in February, 1907; patient has been at work up to the present time, nearly three years; advised to continue the toxins regularly, but did not do so; there has recently been increase in size.

METACARPAL BONE

CASE 88.—Female; periosteal, round-celled; third metacarpal; exploratory incision; amputation middle of forearm; metastases in both breasts and abdomen within four weeks; patient died eight weeks later.

METATARSAL BONE

CASE 89.—Female; periosteal, round-celled; second metatarsal; exploratory operation; amputation of leg; mixed toxins for six months after operation; patient well at present; eight years later.

CLAVICLE

CASE 90.—Male; periosteal, round-celled; excision of clavicle by Dr. Maurice H. Richardson, May, 1908; toxins immediately after operation, continued for eight months, with a few short intervals of rest; patient at present in perfect health, August, 1909, sixteen months later.

SUMMARY OF FINAL RESULTS

Femur Cases.—Eight patients have remained well from three to ten years. Three of these cases were periosteal and five myelogenous. The mixed toxins were used in 5 of the successful cases, after operation in 3 and before operation in 2. In both the disease was too far advanced for hip-joint amputation. The patients are both well, upward of six years afterward.

Tibia Cases.—Three patients have remained well beyond three years. Of these cases one was of periosteal, two of central origin. In the periosteal case the patient was cured by the toxins without amputation and has now been well for ten years.

Radius Cases.—Three patients have remained well from a year and a half to seven years. Two cases were myeloid and one periosteal. One patient on whom operation and curetting was done has been well for seven years. The second patient was treated by amputation, followed by the mixed toxin treatment, and has been well for three years. In Case 3, curetting was done; amputation advised and refused; toxins used; patient has been well for a year and a half.

Ulna Case.—One patient, well more than three years after treatment. The tumor was spindle-celled sarcoma; amputation was done. The patient remained well seven years; then developed extensive abdominal metastases nearly filling the abdomen. Toxins were administered; tumors nearly disappeared under six months' treatment. The patient was advised to continue the toxins, but neglected to do so. He resumed his work and has continued up to the present time, but there is evidence that the tumors are again increasing.

Humerus Case.—One patient, well more than three years ofter treatment. The tumor was a round-celled, infiltrating sarcoma of the upper end (containing giant cells), involving the scapula. Partial excision was done, followed by the toxin treatment. The patient has been well ten years.

Metatarsal Bone.—The tumor was a periosteal round-celled sarcoma. Amputation of leg was performed, followed by toxin treatment. The patient has been well eight years.

Not a single one of my successful cases treated with the toxins has been a true giant-celled sarcoma in the proper sense of the term, meaning an encapsulated endosteal tumor. It is only necessary to divide sarcomas of the long bones in two main groups, namely, periosteal and central or myelogenous, and it is the relative malignancy of these two groups that we have discussed. The pure endosteal sarcoma that has not broken its capsule and not begun to infiltrate the surrounding tissue, if discovered and operated on at this stage, may very well be treated as a nearly benign growth, and amputation should never be advised. Such favorable case, however, has never come under my observation; my experience has been limited to the periosteal and to that type of central or myelogenous sarcoma which has broken th capsule and has become a large infiltrating tumor.

Many cases of inoperable sarcoma of other bones successfully treated with the toxins furnish additional reasons for advocating their use in sarcoma of the long bones.

The final results in this group of cases, while far from ideal, are certainly much superior to the results in other series of cases in which no toxins were used. In making comparisons with other groups, it must be considered that my series is far different from the ordinary series of cases of sarcoma of the long bones observed at a single large clinic or series of cases collected from the surgical literature. The majority of my cases have first been through the hands of other surgeons who regarded them as hopeless when sending them to me. Two cases alone of this group furnish conclusive evidence of the curative value of the toxins and justify us in advocating the treatment for a brief period before resorting to amputation.

In one case (Case 51), a spindle-celled sarcoma of the tibia, which recurred promptly after excision and in which the diagnosis had been confirmed by microscopic examination made by Dr. John Caven, professor of pathology, University of Toronto, and amputation had been advised, disappeared under two months' treatment with the toxins and the patient remained perfectly well for ten years and was shown before the New York Surgical Society in February, 1909.

The second case (Case 29) was one of periosteal round-celled sarcoma of the femur, involving two-thirds of the shaft with extensive metastases in the pectoral and iliolumbar region, in which amputation, advised before metastases had occurred, was refused. The tumors disappeared under the mixed toxins and the patient is well at present, seven years later. The diagnosis in this case had been confirmed by Dr. B. H. Buxton, professor of experimental pathology, Cornell University Medical School, and Dr. E. K. Dunham, professor of pathology, Bellevue Medical School.

In addition to these cases there have now been fourteen others in which an arm or leg has been saved by preliminary toxin treatment.

DETAILED REPORT OF THE MORE IMPORTANT CASES

CASE 15.—*Summary.*—Mixed-celled periosteal sarcoma of the lower end of the femur; amputation; followed by mixed toxins for four months; patient well three years later.

History.—S. D., female, aged 18; no trauma; admitted to the Hospital for Ruptured and Crippled with the following history: One year ago first noticed pain in the right knee; first treated for rheumatism; later, at another hospital the condition was regarded as of tuberculous origin and plaster splints applied. This treatment was continued for seven months. The last two months before she was admitted to the Hospital for Ruptured and Crippled, she had become very emaciated and extremely weak. The right knee showed a fusiform swelling just above the joint with 4 inches enlargement; the knee was acutely tender and motion very painful. The *x*-ray showed the lower 6 inches of the femur nearly twice the normal thickness. From the previous history and the *x*-ray the condition was regarded by Dr. Gibney as tuberculous, and it was decided to excise the joint. On opening the joint

he found it in perfectly healthy condition, while the femur above was much thickened and presented several softened areas purplish in color. The lower end of the femur had become almost entirely disorganized, shaft and condyles being connected only by three narrow bridges of bone. Microscopic examination made by Dr. Jeffries, pathologist to the Hospital for Ruptured and Crippled, showed the growth to be a mixed-celled sarcoma of the myeloid type. The case was referred to me by Dr. Gibney. I advised immediate amputation and performed the operation on April 7, 1906, 4 inches below the trochanter. The patient was put on the mixed toxins April 26 and showed very rapid increase in weight, rising from 69 pounds on June 12, to 92 pounds October 24. The toxins were continued from April 26 to the latter part of August. The patient has been in perfect health up to the present time, a little over three years.

CASE 16.—*Summary.*—Periosteal, round-celled sarcoma of the femur; amputation below the trochanter; toxins four months; patient well three years.

History.—C. L., female, aged 12; swelling of lower end of femur noted in January, 1906, two weeks after an injury to the right knee from a fall. Patient entered the Hospital for Ruptured and Crippled in August, 1906. The entire lower third of the femur was involved, the entire bone being apparently enlarged. An exploratory operation was performed, showing a periosteal round-celled sarcoma. A few days later amputation 4 inches below the trochanter was performed and the patient was put on the mixed toxins as soon as the wound was healed. The treatment was continued until Jan. 15, 1907, four and one-half months. She has remained well up to the present, October, 1909, that is, for three years.

CASE 29.—*Summary.*—Round-celled periosteal sarcoma of the femur involving lower two-thirds of the shaft, with extensive metastases in the pectoral and iliolumbar region, successfully treated with the mixed toxins; patient well over five years.

History.—A. G., aged 19; first noticed swelling in the lower portion of the left femur in November, 1901. This gradually increased in size, being accompanied by loss of weight and deterioration of general health. The patient was referred to me by Dr. W. R. Townsend, and was admitted to the General Memorial Hospital on Feb. 8, 1902. At this time there was a large tumor, extending from the condyles of the left femur to the junction of middle and upper thirds. There was a fusiform enlargement of the lower two-thirds of the femur. An exploratory incision under ether was made and a specimen of the tumor removed. Microscopical examination made by Dr. E. K. Dunham of Carnegie Laboratory and B. H. Buxton of Cornell Medical School, showed the growth to be a round-celled sarcoma—not giant-celled. Amputation at the hip-joint was strongly advised, but refused. The patient was put on the *x*-ray, which was continued for several months, with temporary improvement, both local and general. In December, 1902, however, there developed a large metastatic tumor in the left pectoral region, which grew with great rapidity and was highly vascular. It was partially removed under ether anesthesia. At about the same time there developed a much larger metastatic tumor in the right iliolumbar region, which grew to the size of a child's head. This was firm in consistency and, apparently, of retroperitoneal origin. At this time the mixed toxins of erysipelas and *Bacillus prodigiosus* were given systemically, into the gluteal region, no local injections at all being given. A few weeks later the tumor of the iliolumbar region began to soften the breakdown, and when fluctuation became evident it was opened and between a pint and a quart or necrotic tumor tissue evacuated. A large drainage-tube was left in the iliolumbar region and the sinus remained open for more than a year. The patient recovered perfect health and is alive and well at the present time, nearly seven years later.

CASE 51.—*Summary.*—Large, recurrent spindle-celled sarcoma of the tibia (periosteal); operation; treatment with toxins; patient well ten years later.

History.—J. F., male, aged 40 years; farmer by occupation, Ontario, Canada; family history good; operated on July 28 and Nov. 25, 1898 (excision of tumor); microscopical examination was made by Dr. John Caven, professor of pathology at the University of Toronto, Canada; diagnosis, spindle-celled sarcoma. The disease quickly recurred. Amputation was deemed necessary, but a preliminary trial with the mixed toxins was advised. The patient entered the general Memorial Hospital Feb. 12, 1899, for the treatment with the toxins. Result: Entire disappearance of the tumor. The patient has remained in perfect health since; he is now well upwards of ten years. He was shown before the Medical Society of Greater New York, February, 1909.

CASE 30.—*Summary.*—Round-celled myeloid sarcoma of the femur, too extensive for hip-joint amputation; treatment with toxins; entire recovery; the patient perfectly well more than six years afterward.

History.—R. L., female, aged 19, was admitted to Mount Sinai Hospital on May 24, 1898, and remained until July 24, suffering from spontaneous fracture of the femur. The diagnosis of malignancy was not made until her readmission on Dec. 24, 1898, when it was found that there was a shortening of 2.5 cm. The trochanter was 2 cm. above Nélaton's line, false motion in all directions. The upper and outer aspects of the thigh were occupied by a large swelling of semisolid consistency. There was no tenderness. The patient's general condition was only fair. On Jan. 5, 1899, Dr. A. G. Gerster made an incision into the tumor, which was found to be soft and intimately connected with the bone, apparently springing from the medulla of the femur. The tumor was considered inoperable, and a specimen was removed for pathologic examination, and pronounced giant-celled sarcoma by Dr. Mandlebaum, the hospital pathologist. On January 25 the administration of the mixed toxins of erysipelas and *Bacillus prodigiosus* was begun. The initial dose was 1 minim, which was gradually increased up to 3 minims, daily injections being given. The injections caused severe reactions, with pronounced chills and a temperature up to 105. A large portion of the tumor became necrotic, the patient's general condition grew markedly worse, and she was transferred to the Montefiore Home for Incurables. Shortly after her admission the tumor began to decrease in size; large masses of broken-down tumor tissue were discharged every few days. In May, 1901, the greater part of the tumor had sloughed away and the patient began to gain a little in flesh and strength. On May 29, 1901, the opening was enlarged by Dr. John Rogers, the large cavity of the bone was exposed and curetted and the wound packed. The sinus not having entirely closed on Feb. 29, 1902, the wound was again enlarged and curetted by Dr. Elsberg. The bone cavity was filled with iodoform and paraffin. The material removed at this last curetting showed no sarcomatous element. The patient rapidly improved in general health, and the femur became firmly reunited. The patient was well when last heard from, four years ago, when she was shown before the New York Surgical Society in perfect health and with perfect restoration of the function of the limb.

The diagnosis in this case was further confirmed by microscopic examination made by Dr. T. Mitchell Prudden, professor of pathology to the College of Physicians and Surgeons.

CASE 53.—*Summary.*—Round-celled sarcoma (myeloid) of the tibia, rapidly recurrent after two operations. Entire disappearance under the mixed toxins of erysipelas and *Bacillus prodigiosus* combined with a short period of *x*-ray treatment.

History.—K. K., female, aged 17; good general health with no family history of malignant disease, was treated at several metropolitan clinics from Sept. 29, 1904, to March, 1905. At these various clinics the disease was regarded as tuberculous in nature. The first symptom noticed was pain in the ankle; later a small swelling appeared over the internal malleolus, which was painful on pressure. This was first treated with a rubber plaster strap, later with the application of salves and, in May, 1904, a plaster-of-Paris splint was applied. In September, 1904, the patient was unable to walk; the lower end of the tibia became enlarged and an area of softening, which was regarded as pus, appeared over the internal malleolus, with slight effusion in the joint. There was also marked atrophy of the muscles of the leg. On Oct. 11, 1904, the patient was operated on by Dr. V. P. Gibney. An incision 2¾ inches long was made over the lower and inner side of the tibia and 8 ounces of thick, reddish-brown soft material were removed from the bone. The entire lower third of the tibia was apparently involved, only a thin outer shell remaining. There

was no evidence of involvement of the fibula, and the ankle-joint itself did not appear to be invaded. A microscopic examination was made by Dr. F. M. Jeffries, pathologist to the hospital, who pronounced it myelogenous giant-celled sarcoma. The disease very quickly recurred and a second operation was performed on Jan. 3, 1905. The very large local recurrence was again curetted and chiseled out. The patient was then put on the mixed toxins of erysipelas and *Bacillus prodigiosus*, the injections being made partly in the vicinity of the disease and partly in the buttocks. There was a beginning recurrence of the tumor in spite of the treatment, but on increasing the dosage the tumor soon appeared to reach a quiescent stage. The patient was admitted to the General Memorial Hospital in April and toxins and *x*-rays were pushed vigorously until July. During this period the tumor slowly retrograded, and when she was discharged in the latter part of July, 1905, there was very little of the tumor remaining. I made a subsequent examination in October, 1905, at which time the tumor seemed to have entirely disappeared, but there was a small area of granulation, the size of a silver quarter, which remained unhealed. I examined the patient at intervals thereafter, but there always remained a sluggish ulcer which did not yield to local treatment. As there was no evidence of a return of the disease, a year ago, the patient was readmitted to my service at the General Memorial Hospital and the ulcer, which by this time had become the size of a silver dollar, was covered with skin grafting. The grafts took perfectly and the patient has been entirely well up to the present time. The fact that no recurrence has taken place within four years since the treatment was discontinued, justifies us, I think, in regarding the patient as probably cured.

CASE 18.—*Summary.*—Periosteal small round-celled sarcoma of the femur; antecedent trauma; amputation below the trochanter by Dr. J. F. Erdman; toxins administered after operation and continued for four months; patient in perfect health three years later.

History.—W., aged 35, male, in the spring of 1906 had "rheumatism for a number of months; the pain increased; general health deteriorated; shortly afterward there appeared a bony swelling in the lower end of the femur; clinical diagnosis of sarcoma was made and confirmed by exploratory incision in September, 1906. Microscopic examination proved it to be small round-celled sarcoma. In view of the patient's poor general condition, I advised amputation below the trochanter to be followed by the use of the toxins. The operation was performed a few days later by Dr. J. F. Erdman, and as soon as the wound had healed, the patient was put on the toxins. He was extremely nervous and his general condition was bad. The toxins were continued in gradually increasing doses for five months. The patient has been perfectly well, attending to his business up to the present time, three years later.

CASE 80.—*Summary.*—Round-celled periosteal sarcoma of radius; amputation; mixed toxins administered after operation and continued for about four months; patient well nearly three years later.

History.—L. M. L., aged 31, female, first noticed pain in the left hand and wrist in the fall of 1905; was treated for rheumatism for several months. In January, 1906, a lump appeared in the lower end of the left radius; this increased slowly in size and was attended with a moderate amount of pain. The patient came under my observation in September, 1906; examination showed the lower end of the left radius occupied by a tumor about the size of an orange. The tumor had so completely destroyed the radius that spontaneous fracture had taken place with considerable displacement, giving the appearance of a Colles' fracture. Amputation was advised and done by me Sept. 14, 1906. The patient was at once put on the mixed toxins and the treatment continued by her family physician for about four months. She has remained well up to the present time, nearly three years later.

CASE 79.—*Summary.*—Giant-celled central sarcoma (myeloid) of the radius, involving periosteum, successfully treated with the mixed toxins of erypsipelas and *Bacillus prodigiosus*, without amputation.

History.—M. F., female, aged 26, with no family history of malignant disease, several years ago fell and injured her left wrist. On Easter Sunday, 1908, she tripped and fell again, injuring the same wrist. The patient saw a local physician, who told her that the wrist was broken. She was then sent to the New York Hospital, where the condition was at first regarded as a fracture, but two days later an *x*-ray plate was taken which showed, in addition, a pathological condition of the bone. An operation was performed by Dr. Eugene H. Pool and Dr. Stewart, at the New York Hospital, on May 1. The periosteum was found covered with soft reddish tissue; the central portion of the bone was also filled with the same material. This was curetted out on either side and the fractured edges were approximated. The fracture, which was evidently of pathological origin, due to sarcomatous degeneration of the bone, was about two inches above the lower end of the radius. On May 18, 1908, no evidence of union had appeared and amputation was advised by Drs. Hartley and Pool, but absolutely refused by the patient, and she was discharged from the hospital. On May 22, four days later, she was admitted to my service at the General Memorial Hospital and was immediately put on the mixed toxins of erysipelas and *Bacillus prodigiosus*. Physical examination at that time showed the following condition: The left wrist was considerably thickened about three inches upward from the lower end of the radius. Two inches above the lower end there was a point of motion, showing a fracture. The toxins were given four to five times a week, the injections being made chiefly into the pectoral region and arm; no local injections were given. The swelling about the lower end of the radius slowly but steadily subsided and decreasing mobility showed that union was gradually taking place. No other treatment of any kind was given. After the patient left the hospital, union gradually became more firm, and when I examined the patient last, in August, 1909, she was in perfect health and there was no evidence of metastases. The pathological report by Dr. Elsner, pathologist to the New York Hospital, shows the tumor to be a round-celled, giant-celled sarcoma of the lower end of the radius. This patient was shown before the meeting of the Medical Society of Greater New York in 1909.

DISAPPEARANCE OF SARCOMA OF THE HUMERUS FOLLOWING INJECTIONS OF COLEY'S FLUID

Dr. Ashdown,[6] surgeon to the Metropolitan Hospital of London, reports the disappearance of a tumor, probably periosteal sarcoma, of the humerus following injections of Coley's fluid. The following is a brief abstract of the case:

Patient, a woman, aged 45; no trauma; tumor of seven weeks' duration in the lower portion of the right humerus. Pain and weakness; no involvement of the joint; no fluctuation or egg-shell crackling; superficial veins prominent in one enlarged gland of the axilla. A radiograph showed a condition very characteristic of periosteal sarcoma. The tumor steadily increased under administration of potassium iodin, as shown by measurements and *x*-ray pictures. The toxins were begun in ½-minim doses and gradually increased up to 9 minims; continued from May until August, 1908, when the tumor had practically disappeared. The structural outline of the bone had become normal, as shown by the radiograph. Another radiograph, taken Feb. 1, 1909, showed the improvement to have continued.

To show the value of the use of the mixed toxins after operation, as a prophylactic against recurrence, the following case may be of interest:

CASE 90.—*Summary.*—Periosteal round-celled sarcoma of the clavicle; excision; mixed toxin administered for a year; patient well thirteen months after operation.

History.—J. W., male, aged 34; trauma six or seven years ago, a plank striking on his left clavicle, nearly knocking him down. Father died of cancer of stomach. Patient noticed a swelling of the left clavicle Jan. 19, 1908; no pain; the tumor grew steadily in size. It was operated on by Dr. Maurice H. Richardson, of Boston, May 15, 1908; excision of entire clavicle. Dr. Richardson referred the patient to me for the toxin treatment as soon as the wound had healed, two weeks later.

6. Ashdown: Lancet. London, May 22, 1909.

Examination at that time showed an indurated area over the entire lower cervical region, which was suspicious of a return of the disease. The patient was put on the mixed toxins, which were continued by his family physician, Dr. Truworth of Dixmont, Me. The toxins were given in the pectoral region and the dose was gradually increased up to the point of causing a severe reaction. During the first four months they were given four times a week; then their frequency was gradually reduced until he received only one injection per week. At the end of one year he had had eighty-six injections; the largest dose was 30 minims. At the end of four months he had recovered his normal weight and strength and has been continuing his work ever since. Examination in June, 1909, showed the patient in perfect health with no trace of recurrence. In a recent letter Dr. Richardson states: "If the patient remains well I will give the toxins the entire credit. I shall hereafter use the toxins in all cases of sarcoma as a prophylactic after operation."

In a series of cases in which the toxins have been used systematically after primary operation for sarcoma, I have observed less than 25 per cent. of recurrences, whereas in cases not treated the average per cent. of recurrences has been above 75 per cent.

The facts I have set forth in the foregoing are sufficient, in my judgment, to justify the giving-up of the traditional method of treating all cases of sarcoma of the long bones by immediate amputation. In most cases I believe it safe to wait for two or three weeks, the time required for a trial with the toxins, before sacrificing the limb. Sarcoma cases of extremely rapid growth will probably show little or no effect from the toxins, and one might naturally say valuable time had been lost by the preliminary use of the toxins. It is my opinion, however, that early operation in these cases would not have been of the slightest avail, as shown by the long, almost unbroken list of recurrences and deaths in cases treated by operation alone. On the other hand, in certain cases—probably a small number—the limb will be saved by the preliminary use of the toxins. In those in which early improvement is not marked, operation can then be performed with even greater chances of ultimate success than if toxins had not been first used.

The greatest value of the toxins in sarcoma of the long bones will, I believe, be shown to lie in a judicious combination with conservative operative treatment. By such procedure a hip-joint amputation, which has been the amost uniform rule for sarcoma of the femur, will give place to an amputation below the trochanter, which will leave a stump of sufficient length to permit the wearing of an artificial limb, and this is no small gain. The toxins will be administered for a considerable period of time after amputation with the hope of destroying the cells which are left behind and which, with operative treatment alone, cause the local and metastatic recurrences. The same rules will apply to sarcoma of the humerus.

Coming to sarcoma of the tibia, fibula and radius and ulna particularly of the myeloid type, in place of amputation as formerly advised and still advocated by the great majority of surgeons, we can safely substitute either curetting or partial resection, followed by a thorough course of the mixed toxins. While good results have been obtained from operation alone in a very limited number of cases in this group, I am convinced that the number of successes will be greatly increased by combining the toxin treatment with conservative operation, as I have suggested, and my series of cases strongly supports this opinion.

As earlier diagnosis is steadily but surely coming, owing to increased knowledge of this disease coupled with more correct interpretation of x-ray plates and the use of earlier exploratory operations, the conservative treatment along the lines I have mentioned will soon show results much superior to those obtained by the radical and maiming operations thus far almost uniformly practiced.

5 Park Avenue.

ABSTRACT OF DISCUSSION

DR. JOSEPH C. BLOODGOOD, Baltimore: I cannot agree with some of the conclusions made by Dr. Coley. I am of the opinion that giant-cell sarcoma is relatively one of the least malignant of the sarcomas of bone and Dr. Coley should not include such tumors in the percentage of cures with his extracts. In the surgical pathologic laboratory I have a record of sixteen cases of medullary giant-cell sarcoma of bone. All the patients are well to-day. It is twelve years since the date of operation in the oldest case. In none of these patients was a serum employed. The operations have varied from curetting to amputation. During the same time there have been three cases of periosteal giant-cell sarcoma, one situated around the ulna, two near the head of the tibia. These patients have remained free from recurrence for from eight to twelve years. To these nineteen cases of giant-cell sarcoma of the long pipe bones I may be permitted to add about twenty patients with giant-cell sarcoma of the upper and lower jaw which have also remained well since removal. In addition, with the assistance of Mr. Schapiro, we have failed to find in the literature a case of pure giant-cell sarcoma which had given metastasis, and there are recorded cures even after two or more operations for recurrence. In the case of medullary giant-cell sarcoma in which I operated in December, 1902 (*Bull. Johns Hopkins Hospital*, May, 1903, vol. xiv, p. 133) the patient has remained free from recurrence up to date—six and one-half years.

The giant-cell sarcoma should not be included in any group of cases in which, in addition to operative measures, other treatment such as Coley's serum or the x-ray has been employed, and cures can be accomplished in this group by the most conservative means without the aid of any sera or the x-ray. The other forms of the less malignant sarcomas of bone are relatively less frequent than the giant-cell sarcoma. For example, I have observed but eight cases as compared with nineteen giant-cell sarcomas of the long pipe bones. To this less malignant group belong the periosteal osteosarcoma (three cases, two cures) the chondromyxo-sarcoma (four cases, two cures) and the periosteal fibrosarcoma—a recent case. But if we include tumors of this variety originating in the upper and lower jaw we can increase the number of osteosarcoma, myxosarcoma and fibrosarcoma by about ten cases, in all but two, of which the patient's have remained well; these two died from postoperative complications.

However, when we compare the results in the treatment of the more malignant periosteal and medullary sarcoma with and without the use of the Coley serum we find a great difference. In my experience and in the literature no one has accomplished a number of cures in the round-and-spindle-cell sarcoma equal to Dr. Coley. In view of Dr. Coley's experience I feel that his method of treatment should be tried in all these more malignant sarcomas, so that we may get quickly a large accumulated experience in the hands of numerous investigators. An observation like Dr. Coley's should receive confirmation. In regard to Dr. Coley's statement that a low amputation should be performed rather than a high one, if the serum is employed in addition to operation I would go further. Amputation is only indicated when the complete excision of the tumor would leave a limb without function. It is the extent of the local growth that justifies amputation.

It is a rather remarkable and suggestive observation, which has been commented on by many writers, that among the cures of the more malignant sarcomas of bone there have been about as many resections as amputations. In sarcoma of bone the cause of death is metastasis, not local recurrence. In regard to the question of exploratory incision, I do not see how it can be answered in more than one way. We must

explore all early doubtful bone lesions. It would be unjustifiable to amputate or to resect without first ascertaining the nature of the lesion by an exploratory incision. For this reason surgeons who assume the responsibility should educate themselves to recognize either from the gross appearance or a rapid frozen section the nature of the different surgical diseases. The surgeon must be his own pathologist, just as will be demonstrated that in surgery of the chest he must be his own physiologist.

DR. ARTHUR DEAN BEVAN, Chicago: I think that we ought to commend and congratulate Dr. Coley for the persistence with which he has pursued this subject and advocated the use of the mixed toxins in sarcoma. At times I have been very enthusiastic about them. I have employed them in thirty or forty cases and I have seen distinct and marked effects from their use, large masses of tumor tissue diminishing considerably in size. I want to say, however, that I have never seen a cure. I believe that has been the experience of a number of other surgeons who will agree with me that the use of these toxins is advisable in inoperable cases. Many hopeless cases come to us for relief and we ought to feel thankful that there is something which we can use which will give these poor people relief for a time at least. It is in these cases that the mixed toxins and other agents like the Roentgen-ray and radium should be employed. And yet when we come to analyze the results as presented, for instance, by Dr. Coley from the treatment of these tumors by operation and serum, or as presented by Dr. Bloodgood, where I imagine operation only was employed in the majority of cases, I am rather inclined to believe that we must come to this conclusion, that although the toxins offer a possibility of benefit, that possibility is distinctly small. If I were to present my impressions of the value of the toxins on the one hand and the value of operative procedure on the other where the two were employed in a given case I should say that the toxins offered about 1 or 2 per cent of possibility of permanent cure while the operation offered 98 or 99 per cent. Still I believe that the use of the toxins should be continued and it is possible that more permanent results and a larger percentage of good results may be obtained in the future.

DR. HENRY S. WIEDER, Philadelphia: I believe a splendid opportunity would be lost if we did not call attention especially to the two cases which Dr. Coley referred to as cases of myositis ossificans. Is is important to differentiate this condition from sarcoma. I am especially impressed with this subject because of a case which came under my observation through the kindness of Dr. Rodman. The man had been on a jaunt, became intoxicated and apparently took part in a street brawl. When he recovered after two or three days he found that he had a sore thigh. He said that at the time there was some ecchymosis. He did not notice that there was anything else wrong nor that there was a fracture. After three or four weeks he presented himself for treatment of a tumefaction on the femur. The condition was not diagnosed immediately, but he was kept under observation for a while until he became restless and sought aid in another hospital, where he came under the care of Dr. Rodman. Dr. Rodman thought that the growth was a sarcoma, but not being altogether satisfied he made an exploratory incision and sent a small piece of the tumor to me for examination. I examined it and concluded that it was probably a proliferative osteitis, but I would not make a definite diagnosis from so small a specimen. However, as a result of my examination, Dr. Rodman performed a secondary operation. Portions of the growth, both deep and superficial, were removed, and we could find no evidence of sarcoma, but only a proliferative osteitis and also some muscle fibers. We were unable to say whether this was a case of myositis ossificans or whether it was the result of trauma during the previous operation. We were positive, that is was not a case of sarcoma. The man was sent home and as we have not heard anything more from him we may take no news for good news. These cases should cause us to be very careful in making a diagnosis, and we must never think of performing an amputation in doubtful cases without having first submitted a piece of the tumor mass to a thorough and careful microscopic examination.

DR. JOHN B. ROBERTS, Philadelphia: We must not forget the influence of Roentgen-ray treatment on sarcoma when given in large dosage. I have used Coley's toxins a considerable number of times in recent years, but I regret to say that I have never seen any benefit from their use. The Roentgen-ray, however, has given me some unexpected results. Recently I saw a large infiltrating sarcoma of the neck which I did not dare touch with the knife. Under Roentgen-ray treatment a considerable portion of it was absorbed and the remainder became surrounded with a fibrous-like capsule from which I have scraped away a mass of sarcomatous tissue. Dr. George F. Pfahler has done this work for me in an excellent manner, giving large doses of the Roentgen-ray. I do not know what will be the final outcome because the patient is still under treatment.

DR. WILLIAM B. COLEY, New York: In replying to Dr. Bloodgood, the statistics of a single large surgical clinic, such as Bruns', extending over a long period of time (thirty-four years) give a much more accurate idea of the final results obtained in the treatment of sarcoma of the long bones than any collection of single cases found in the literature which are often reported because unusual. The fact is that Dr. Bloodgood referred to cases of sarcoma in various localities, while my paper is confined to a study of sarcoma of the long bones. He does not state how many cases of sarcoma of the long bones of the myeloid type he has known to have been cured by conservative treatment. My paper contains an abstract of all the cases of sarcoma of the long bones treated in Bruns' clinic during thirty-four years, 93 in number, in 65 of which the origin is definitely stated. While time did not permit me to read them I will now give a brief résumé:

There were 33 cases of myelogenous sarcoma of the long bones observed; 4 had to be excluded because they were either too far advanced for operation or operation was refused. Of the remaining 29, 17 patients were treated by amputation, 7 by exarticulation, 4 by resection and 1 by curetting. Of the 17 treated by amputation the end-results are known in 11 and of these 8 patients died of metastases, 5 within less than a year, 3 within from 2 to 5 years. Yet Dr. Bloodgood stated that he had never seen a case of giant-celled sarcoma followed by metastases. All of the 7 patients on whom exarticulation was performed died either in direct consequence of the operation or of recurrence within a short time after operation. Of the 5 patients conservatively treated 3 remained well, 3, 17 and 27 years respectively. Of the 32 patients with periosteal sarcoma of the extremities 3 had to be excluded for various reasons, leaving 29, in 25 of whom amputation was performed, in 2 exarticulation and in 1 each resection and excochleation. Only 4 remained well over 3 years after amputation. That the final results in the two classes of cases were not so strikingly different is shown by the fact that in the myelogenous group there were 5 in 29 patients who remained well over 3 years; in the periosteal 4 in 29 cases. My statistics, based on 94 personal observations, confirm the results obtained at the Bruns clinic. These cases (which will be published in the paper itself) represent the most malignant types of sarcoma, many of them periosteal, none of them pure giant-celled sarcoma in the true sense of an encapsulated endosteal tumor. I have never recommended the toxin treatment as a substitute for operation. At first I advised the method only in hopeless, inoperable cases, but later, after its value in such cases had been fully proved, I extended its use to a preliminary course in cases of sarcoma of the extremities, in which operation meant the sacrifice of the limb. The fact that a limb was saved by such preliminary treatment in fourteen cases would seem sufficient ground for adopting it as a routine measure. The subject of my paper is really: "A Plea for More Conservative Methods in the Treatment of Sarcoma of the Long Bones" and Dr. Bloodgood fully agrees with me in the main point; he even goes further in advising conservative methods also in the periosteal group of cases. While there will probably always be some people who will try to explain the successes from the use of toxins in inoperative sarcoma on the ground that the diagnosis was wrong and that the cases recovered spontaneously, the number of successes at the present time has been so great that such explanation can hardly

receive serious consideration. Besides, spontaneous cures in carcinoma or sarcoma are so exteremely rare that there are probably few in the audience who have ever seen a single authentic case. I have cited examples of some of the most desperate cases of inoperable sarcoma, in which the diagnosis was confirmed by the most competent pathologists, which strikingly improved coincident with the beginning of the administration of the toxins and went on to a complete cure, the patients remaining well for many years thereafter. I have thus far had 52 patients with sarcoma, inoperable and hopeless as far as surgery was concerned, which were successfully treated with the toxins; of these 35 have remained well from 3 to 15 years and I think that over 100 have been successfully treated by other surgeons. In 3 or 4 cases in which the tumor had disappeared and the patient had remained well for a considerable time, the growth returned and caused the death of the patient. These cases are perhaps most important of all, inasmuch as they absolutely establish the correctness of the diagnosis.

THE CLINICAL USE OF PHENOLPHTHALEIN *

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PHILADELPHIA

The clinical use of phenolphthalein, so far as our present knowledge goes, is that of a purgative, and as such it is a valuable and efficient remedy. It is a yellowish powder, being soluble in alcohol and in aqueous solutions of hydroxids and carbonates, and but very slightly soluble in water. Phenolphthalein is a definite chemical compound, belongs to a class of bodies known as phthaleins, and is obtained by the action of phenol on phthalic-acid anhydrid. It is colorless in acid solutions and red or pink in alkaline liquids, and, owing to its characteristic color with alkalies, it has long been used by chemists and clinicians as an indicator of alkalinity in determining the acidity of gastric contents, urine, etc.

Its introduction into therapeutics was accidental in that it had been used in artificial Hungarian wines to prevent their substitution for the genuine wines. Individuals who drank the wine soon suffered from diarrhea, and the diarrhea continued as long as the wine was consumed. This led to a careful examination of phenolphthalein with regard to its action on the bowels, and it was clearly demonstrated by Vámossy that it invariably acted as a purgative. Following these observations, it was introduced as a proprietary remedy under various names: "urgen konfect," "paraphthalein," "purgatol," "purgatin," "purgo," "purglets," "purgella," "purgolade," "purgylan," "laxiconfect," "laxine," and "el zermac."[1]

Vámossy[2] explains the *modus operandi* of phenolphthalein as follows: The probability is that in the acid medium of the stomach it remains unchanged, but on reaching the intestines it becomes converted into its sodium salt, which is more soluble and more active than phenolphthalein itself. This salt is, according to the observations of Vámossy, possessed of a low power of diffusion; and this property explains the purgative action of the substance in that, being indiffusible, its presence in the intestine occasions a high osmotic pressure and consequently a copious accumulation of fluid in the intestine.

Ott and Scott[3] report the result of their study of the effect of phenolphthalein on peristalsis in cats and dogs. They used two methods: one with the Cambridge intestinal plethysmograph and Dr. Schlayer's (Tübingen) recording apparatus. The second method was that of Dr. Magnus, of Heidelberg. An injection of the drug into the jugular vein showed by the plethysmograph that peristaltic contractions of the intestines were increased in number and also in strength. With the excised intestines immersed in a modified Ringer solution, after the addition of phenolphthalein, a decrease in the tonus of the intestine was noted, while the force of the peristaltic movements was greatly increased. These writers explain the action of phenolphthalein on intestinal peristalsis as being either "on the unstriped muscle or the reflex center of peristalsis—the plexus of Auerbach." Ott and Scott also state that it is possible that phenolphthalein has some effect on the nervous plexus; further, they say: "As the intestinal movements are largely due to the unstriped muscular fiber itself, we are inclined to believe that this drug acts mainly on the unstriped muscular fiber in producing peristalsis." Vámossy found that the purgative action of phenolphthalein was much more marked in man than in animals, and he believed this to be due to the fact that in animals the conversion of this substance into its sodium salt either does not take place at all, or only to a very slight extent.

The effect of phenolphthalein on blood-pressure was also studied by F. W. Tunnicliffe, Ott and Scott, and others, and shown to have a slightly depressant action on the circulation, but not so much as magnesium sulphate. The drug does not appear to possess any other physiologic property than that of a purgative.

It was thought that the drug was capable of acting in jaundice, but its effect seems to be due to its purgative action only; it apparently has no influence on the flow of bile. Nor does it seem to irritate the kidneys; it may, therefore, be administered as a cathartic in cases with renal disease. I have used it a number of times in cases of interstitial nephritis without any ill effects. Tunnicliffe used it in patients suffering from albuminuria without any increase in the albumin in the urine.

According to Vámossy and Tunnicliffe, phenolphthalein does not appear in the urine unless very large doses have been taken. Its presence in the urine is easily demonstrated by taking some urine and adding an alkali—sodium hydrate; in the presence of phenolphthalein the urine becomes at once either rose-red or purple, depending on the quantity of phenolphthalein present.

Tunnicliffe says that phenolphthalein is not excreted in the urine to any extent, either as such or as an immediate derivative; he says further that this observation confirms that of Vámossy, who also found no increase in the aromatic sulphates of the urine after the administration of this drug.

Vámossy did find, however, that a very large amount of phenolphthalein, 87.17 per cent. of the ingested quantity, appeared in the feces. The presence of phenolphthalein in the feces can be demonstrated by adding a small quantity of alkali to the stool. The feces will quickly develop a purple color. The reaction will continue to be present for two or three days after the admin-

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

1. Department of Therapeutics, THE JOURNAL A. M. A., March 30, 1907, xlviii, 1133.

2. Vámossy: Ueber neues Abführungsmittel, Therap. d. Gegenw., May, 1902; quoted by F. W. Tunnicliffe, Brit. Med. Jour., Oct. 18, 1902, p. 1224.

3. Ott and Scott: Med. Bull., March, 1908.

istration of a large dose of the drug, but it usually disappears with the cathartic effect of the drug.

It was also believed that the quantity of this substance absorbed into the body when it is administered by the mouth was a negligible quantity; but we know now that the drug must be absorbed more readily than formerly supposed from the fact that poisoning has occurred after the administration of 15 grains.[4]

Clinical experience has confirmed the early investigations of Vámossy, Dornblüth, Tunnicliffe, and others, which show that phenolphthalein is a safe cathartic. It usually acts without pain in about six hours, and it is not followed by a tendency to sluggishness of the bowels. I have had a few patients in whom the administration of the drug was followed by griping, but this, I believe, is more attributable to the idiosyncrasy of the patient than to any irritating effect of the drug. In those cases I added a small dose of belladonna to the phenolphthalein. One must also bear in mind that, while this is an excellent cathartic and that it usually produces purgation, some patients do not respond to its administration. Constipation, of course, requires other treatment besides the giving of drugs. Tunnicliffe states that the drug does not lose its effect when administered over a prolonged time. This does not agree with my experience; in several cases the bowels responded by free purgation when the drug was first given, but later even an increase in the dose was without effect. These latter instances are, however, not common and the administration of the drug is usually followed by satisfactory results. The drug may be prescribed in powder, pill or capsule. It is easily obtained, almost tasteless and not expensive, and some drug manufacturing companies put it up in the form of 1-, 2-, and 3-grain tablets. The dose for adults is from 1 to 5 grains. It is well to begin the treatment by prescribing a small dose, which may be increased to meet the requirements of the individual case. A dose of 3 or 5 grains (19 to 32 cg.), one, two or three times a day, will purge the average patient. The larger dose may be necessary in patients with obstinate constipation. To adults with a moderately severe constipation I give a prescription as follows:

℞.	gm.
Phenolphthalein	¼ or ½

Div. in capsulæ No. xii.
Sig. One capsule three times a day.

I prefer to give the drug put up in capsules. If the taking of three capsules a day causes too free purgation, the dose may be reduced to one capsule at bedtime. Some patients do very well by taking a 5-grain capsule every two or three days. For these latter cases it is better to give a smaller dose; that is, one or two grains at night. If the administration of 5 grains three times a day does not produce the desired effect, I prefer to give another purgative in addition to the phenolphthalein.

Tunnicliffe recommends as high as 15-grain (1-gm.) doses in cases of obstinate constipation, but, in view of the fact that a dose of 15 grains produced poison, a dose of that size is too large. I think that 5 grains is as large a dose as it seems safe to give a patient, especially as some patients possess an idiosyncrasy to phenol preparations.

Tunnicliffe has used the drug in children from two months to seven years of age, also in babies. Babies under eighteen months were given from ¾ to 1½ grains (0.1 to 0.05 gm.) pulverized in one or two teaspoonfuls of milk at night. I have not prescribed the drug for children. If I were to prescribe it for children, however, I would begin with a small dose, say half a grain, given at night.

My experience with the drug, aside from using it in the clinical laboratory, has been in its clinical use, and this in the treatment of constipation in adults. It has usually given satisfaction, and its administration was followed by soft-formed stools; whereas the use of a number of other purgatives in these patients gave very unsatisfactory results. In a few patients whom I have treated, the prolonged use of phenolphthalein was followed by diarrhea, in some instances lasting several days after the drug was discontinued; in other cases (and these patients had formerly suffered from constipation) the diarrhea lasted for a period of upward of a week or until the diarrhea itself was treated. Owing to this effect, two patients could not take the drug for subsequent attacks of constipation.

There is no doubt that in phenolphthalein we have a valuable purgative, and I wish to take this opportunity to recommend it to the United States Pharmacopeia Committee for adoption as a drug. A number of the manufacturers are sampling to the physician and are doing their best to have trade-marked preparations of the drug fall into the hands of the public so that the patient may purchase the remedy over the counter. In view of this fact, I would also recommend that physicians, in prescribing this remedy, write for it under its proper name—"phenolphthalein"—and not by one of the many proprietary names.

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4. Department of New and Nonofficial Remedies, THE JOURNAL A. M. A., April 20, 1907, xlviii, 1351.

SUBCUTANEOUS PURGATIVES

A CLINICAL STUDY ON PHENOLTETRACHLORPHTHALEIN *

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Since the introduction of the hypodermic needle by Alexander Wood of Edinburgh in 1853, a constant and growing tendency to rely more and more on the subcutaneous method of administering drugs has existed because of the fact that this method insures more complete and more rapid absorption and more accurate dosage.

Medicine stands in need of a subcutaneous purgative. The physician and surgeon alike have recognized its necessity. Pharmacologists and experimental therapeutists have repeatedly attempted to supply this demand, turning successively to the salines, to the vegetable purgatives, and to the alkaloids. But still the need is felt, for no preparation suggested has as yet fulfilled the numerous requirements demanded of it. Such a body must act on the intestinal tract and on the intestinal tract only without any untoward effect on any other organ or system, must act with certainty, must be readily soluble, preferably in water, in order that the amount of fluid to be injected may be small, and it must be nonirritant locally. As a rule it should produce its effect within a short time, although in some conditions an action delayed in onset but prolonged in character is to be preferred.

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* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

In this connection it is interesting to review the literature dealing with the subcutaneous and intravenous administration of the saline purgatives. Aubert[1] stated in 1851 that intravenous injections of sodium sulphate produce purgative effects. Claude Bernard[2] made a similar statement in 1857 and Headland[3] in 1859, though neither of the last writers gave any experimental proof for his claim. Buchheim,[4] Wagner,[5] and Hay[6] concluded, after a considerable amount of experimentation, that sodium sulphate exerts no purgative action if given intravenously or subcutaneously, and this has been the conclusion of practically all investigators in this field until the appearance of a paper by J. B. MacCallum,[7] which created a new interest in this subject.

MacCallum introduced solutions of the various salines into the veins or under the skin of rabbits, and then studied the effect on movements of the intestines either by observing the movements of intestines through the opened abdominal wall or by observations made on these animals confined in separate metabolism cages. He concluded that all those salts which act as purgatives when introduced into the stomach or intestines have the same action when injected subcutaneously or intravenously. He also stated that barium chlorid possesses this purgative property to the greatest degree, but all of the other salines possess it to a less degree, that the purgative effect is produced by increased secretion as well as increased peristalsis, and that the purgative effect can be counteracted or abolished by calcium chlorid.

Auer[8] investigated in the same field, but could not obtain MacCallum's results, and claimed that in his experiments sodium citrate used intravenously caused constipation, while magnesium sulphate inhibited intestinal movements.

Bancroft[9] repeated MacCallum's work and stated that sodium citrate or barium chlorid subcutaneously and sodium sulphate intravenously act as purgatives, but that it is easier to produce fluid feces by administering sodium sulphate or sodium citrate by mouth.

Eckardt[10] gives an excellent review of the work done in this field up to 1905 and presents also the results of his own experiments, which conclusively prove that the salines will not furnish us the sought-for subcutaneous purgative.

Although these investigations are of academic and scientific interest, they help to throw some light on the method of action of salines, and, although intestinal peristalsis is undoubtedly increased by some at least of these salts, yet the increase in activity is not sufficiently marked to result in purgation unless toxic or lethal doses are injected. The salines, therefore, are of no practical importance to medicine as subcutaneous purgatives.

Barium chlorid, however, will produce purgation administered either subcutaneously or intravenously, and it is frequently used as such by veterinarians, 1 gm. being sufficient to purge a horse weighing 1,000 pounds. But barium is the most poisonous of the alkaline earths and it affects many organs. It accelerates the heart, enormously raises blood-pressure, and in large doses, besides purging, causes vomiting and sometimes tonic and chronic convulsions. The widespread nature of its activity and its toxicity preclude its general adoption in this field.

1. Ztschr. f. rat. Med., 1852, ii, 225.
2. Substances Toxiques et Medicamenteuses, 1857, p. 85.
3. Action of Medicines, 1859, p. 459.
4. Arch. f. physiol. Heilkunde, 1854, xiii, 217.
5. Inaug. Diss., Dorpat, 1853.
6. Jour. Anat. and Physiol., xvi, 243.
7. Am. Jour. Physiol., x, 101.
8. Am. Jour. Physiol., xvii, 15.
9. Jour. Biol. Chem., iii, 191.
10. Inaug. Diss., Giessen, 1905.

VEGETABLE PURGATIVES ADMINISTERED SUBCUTANEOUSLY

Similar investigations have been carried on with the vegetable purgatives, aloes,[11] colocynth and cathartinic acid having been tested. Hiller[12] regards colocynthin as the most suitable for this purpose. No doubt can exist as to their efficacy when so used, but all these bodies are strongly irritant and the local reaction at the point of injection is frequently extremely severe. They cannot be used in this way except in very exceptional instances where the indications are imperative, and then only with a grave possibility of sloughing occurring at the point of injection.

An effort was made to see if croton oil greatly diluted could be used subcutaneously. Two drops of croton oil were added to 5 c.c. of olive oil and under aseptic precautions introduced beneath the skin of a dog. On the following day a painful swelling was found at the point of injection. This increased in size, became very tender, and persisted for several days. No evidence of an action on the intestine was noted until the fifth day, when a large amount (100 gm.) of fluid feces was passed. The stools remained soft for three days and then returned to a normal consistency.

An experiment with castor oil yielded a very similar result. A dog was injected with 25 c.c. of sterile castor oil on December 12. No purgative effect was obtained until December 18, but this was so slight in degree that it was doubtful. A large painful swelling occurred at the point of injection, which persisted until December 21. It is scarcely possible that any serviceable subcutaneous purgative will be obtained from this class of drugs.

APOCODEIN

The work done with apocodein, however, has been more fruitful. This is an alkaloid corresponding in derivation to apomorphin from morphin, obtained by dehydrating codein. It was first carefully studied by Guinard.[13] He noted that it produced no nausea or vomiting, and following its administration he observed the increased peristalsis through an open abdominal wall. Murrel[14] used it as an expectorant in 1891, Toy[15] as a sedative in maniacal cases in 1895. Combemale[16] introduced it as a purgative by mouth in 1900. He interested Raviart and Barton,[17] who in the same year administered it subcutaneously in 34 cases of constipation with very encouraging results. Giraud,[18] 1903, used it in 8 cases of constipation, also with satisfactory results. In the same year Heinze[19] tested it in a series of 30 cases of constipation. He had 47 per cent. of successful cases and in 53 per cent. it utterly failed. From his experience he concludes that apocodein is unsatisfactory in that it is uncertain in action, but admits that it works very well in many instances.

The dose of this drug is small, .02 gm. of the hydrochlorate being usually sufficient, while .05 gm. is the maximal dose. Most of the writers claim that the first evacuation follows shortly after the administration of the injection, frequently within one to two hours.

11. Hans Meyer: Arch. f. exper. Path., xxviii, 186.
12. Ztschr. f. klin. Med., iv, 480.
13. Lyon méd., 1893, pp. 21 and 23.
14. Brit. Med. Jour., 1891, i, 455.
15. Semaine méd., 1895, p. 346.
16. Semaine méd., 1900, p. 422.
17. Echo méd. du nord, December, 1902.
18. Thèse de Lyon, 1903.
19. Psychiat.-Neurol. Wchnschr., 1903-4, v, 297.

Heinze, however, states that the average time is from ten to twelve hours.

The objections to apocodein are worthy of consideration, for it certainly does not represent the ideal subcutaneous purgative as outlined above. According to Dixon[20] it lowers the blood pressure, dilates the arterioles, increases peristalsis by its sedative action on the inhibitory ganglia of the sympathetic system, increases the rate of the heart beat, and increases nerve reflexes. Its actions are too numerous and complex and involve too many symptoms. Unfortunately, although readily soluble in water, it is irritant, locally, many of the patients having complained of pain and an abscess having followed its use in one case. Its action is also short in duration, constipation usually returning in a day or two.

Notwithstanding these drawbacks apocodein is, however, a serviceable hypodermic purgative. Personal experience has been limited to animal experimentation. On one occasion an evacuation of the bowels followed within an hour of the injection of 0.04 gm. subcutaneously in a dog. In other instances movements occurred within ten or twelve hours, but the stools were not soft and no prolonged action was obtained.

ESERIN

Eserin or physostigmin has also been investigated. Dickerhoff[21] first suggested its use, and since then it has been tried clinically by many investigators, von Noorden,[22] Packard,[23] Pankow,[24] Craig,[25] Jewett,[26] particularly by surgeons and obstetricians. It is not given solely for its purgative effect but most frequently to prevent or overcome intestinal paresis following surgical operations, or to overcome intestinal atony following parturition, or to expel gas from a distended intestine. Craig has used it extensively, and he administers it immediately after opening the abdomen provided no contraindication presents itself. He claims that it is of more value in preventing or warding off threatened intestinal paresis than it is in curing this condition when once established. He advises large doses, 1/35 gr. of the acetate administered early subcutaneously, and he regards this as essential for successful results, attributing Pankow's lack of results to the smallness of the dose utilized. Jewett's results confirm those of Craig. But all these authors find that though preventing paresis eserin is not always sufficient to produce purgation, thus rendering necessary the administration of other purgatives by mouth.

Eserin is an exceedingly powerful alkaloid and must be handled judiciously. Undoubtedly it has its place when used in conditions described above, but it is not of wide practical application and will never come into general use alone as a subcutaneous purgative.

SODOPHTHALYL

Fleig[27] in a recent publication states that he has prepared a soluble salt of phenolphthalein which he has named sodophthalyl, and which according to his account is being used successfully as a hypodermic purgative in the clinics in Montpellier. His account of the mode of preparation and of the chemical properties of this derivative are so exceedingly meager that no definite idea of its chemical constitution can be formed. I assume here that it is the disodium salt of phenolphthalein which has also been described by Meyer and Marx,[28] and which is made by the addition of sodium hydroxid to phenolphthalein. This salt is very soluble, and, being a combination of a very weak acid with a very strong base, it is readily hydrolizable and acts like a solution of the alkali itself; that is, it is decidedly irritant.[29] It is with great interest that we await the report of the therapeutic application of sodophthalyl in the clinics of Montpellier; and if this substance is identical with the disodium salt of phenolphthalein, it is difficult to see how it can be used on account of its irritating effect at the point of injection.

In April, 1908, Abel and Rowntree[30] started an investigation of the phthalein group with particular reference to the excretion, the absorption, and the purgative action of different members of this family, and also as to the effect of substitution of different parts of the phthalein radicle on the pharmacologic action of the drug.

It was proved that olive oil when heated would dissolve phenolphthalein and many of its derivatives, and that this oil preparation possessed some value as a purgative when injected beneath the skin of dogs. But it was soon observed that more prolonged purgative action was obtained when phenoltetrachlorphthalein was employed than when any other phthalein at their command was used.

METHOD OF PREPARING OIL SOLUTION

The solution of phenoltetrachlorphthalein employed throughout this investigation is prepared in the following way: Neutral olive oil is slowly heated to 210 C., and when this temperature is reached finely powdered phenoltetrachlorphthalein is added with stirring. The heating is continued for not longer than five minutes and the temperature is not allowed to exceed 220 C. In order to remove any traces of foreign matter or undissolved phthalein, the oil solution is filtered hot into sterilized flasks and set aside for use. Olive oil thus treated will dissolve the chlor body to the extent of about 0.2 gm. to every 10 c.c. of oil, while it will dissolve phenolphthalein itself to a slightly greater extent at a slightly lower temperature.

Analytical experiments were made which show that no appreciable saponification of the oil takes place during this procedure. Nevertheless, in order to lessen the risk of saponification, the custom was adopted of preparing only 40 c.c. of such a solution at a time, though doubtless larger volumes of the solution might be prepared at one operation.

Phenolphthalein exhibits a greater tendency to come down out of such a solution, but a properly prepared solution of the chlor body will stand some days without any precipitation whatever.

ABSORPTION, EXCRETION AND MODE OF ACTION

Before entering on the report of the clinical application of this substance a few words concerning its absorption, its fate in the body, its channels of excretion and its mode of action will not be out of place.

Practically all the drug is absorbed from the local seat of injection into the general circulation in from

20. Jour. Physiol., xxx, 97.
21. Wchnschr. f. Thierh. u. Viehz., 1882, xxxvi, 309.
22. von Noorden: Berl. klin. Wchnschr., 1901, p. 1057.
23. Philadelphia Med. Jour., May 24, 1902.
24. Zentralbl. f. Gyn., June, 1904.
25. Am. Jour. Obst., April, 1904. Am. Jour. Obst., September, 1904. New York Med. Jour., 1905, lxxxi, 527.
26. Brooklyn Med. Jour., xix, 42.
27. Arch. internat. de pharmacod. et de thérap., xviii, 327
28. Ber. d. deutsch. chem. Gesellsch., 1908, xli, 2446.
29. In animal experiments Abel and Rowntree used the disodium salts of both phenolphthalein and its tetrachlor derivative for injecting subcutaneously in dogs. Irritation, infiltration, and sterile abscesses followed in many of the animals so that these preparations were abandoned.
30. Abel and Rowntree: Jour. Pharmacol and Exper. Therap, 1909, I, 231.

sixteen to twenty-four hours. It appears in the bile in the conjugated form, and later in both the free and conjugated condition, and continues to be excreted in the bile of a biliary fistula dog for from forty-eight to seventy-two hours and in the feces of a normal dog as long as five and six days. Part of the drug is reabsorbed again from the large intestines, and the purgative action produced is consequently very prolonged in nature. No traces of the drug can be detected in the urine; it thus differs from phenolphthalein, which after being injected under the skin escapes to a considerable degree by way of the kidneys.

After a prolonged period of experimentation in a series of forty injections in dogs it was learned that injections of this body in neutral olive oil were not followed by any untoward results either locally at the point of injection or systemically, and that no system other than the alimentary was influenced by this substance. Its introduction into the dispensary and wards of the hospital for further investigation was therefore considered justifiable and advisable. A study to determine its clinical value was accordingly undertaken at the suggestion of Dr. Abel.

ADMINISTRATION TO OBSTETRICAL PATIENTS

The first series of injections were made in the obstetrical wards by the permission of Dr. Williams and with the kind assistance of Dr. Storrs. The cases represent women in the puerperium, some of whom received the injection in place of the usual initial purgative, while others received it when a purgative was indicated later during the lying-in period. This table also includes the result of one injection of 12 c.c. of the oil preparation given to a dispensary patient (No. 3, Mrs. R.). This case is included here because of the smallness of the dose administered.

SUBCUTANEOUS INJECTIONS OF PHENOLTETRACHLORPHTHALEIN

Dose.	Patient.	Day of injection.	Days following injection.					
			1	2	3	4	5	6	7
Patients receiving 0.2 gm. in 10 c.c. of oil.	1 Mrs. H.		1	0	1	0			
	2 Mrs. A.	1	2	0	0	1			
	* 3 Mrs. R.		1	1	1	0	1	0	1
Patients receiving 0.3 gm. in 15 c.c. of oil.	4 Mrs. A.		1	2	0	1	2	2	2
	5 Mrs. C.		3	1	0	1	1	0	1
	6 Mrs. F.		0	1	0	1	1		

These results are not entirely satisfactory, but in the light of later experiences this is thought to be due to the fact that the dose administered was too small, and probably had the dose been larger the results would have been correspondingly more favorable. However, a decided laxative effect was obtained. The stools became softer and in some instances semifluid or of the consistency of a porridge, and in one instance contained the drug as late as the fifth day. In none of the cases did local irritation or inflammation follow the injection, nor were griping pains or colic complained of by any patient at any time following the administration. The urine and the milk were collected from the mothers, but no drug could be detected in either secretion.

A glycerin suppository was given at the end of thirty-six hours when necessary for the first movement, and repeated if thirty-six hours again intervened without an evacuation.

RESULTS OF ADMINISTRATION TO DISPENSARY PATIENTS

The results just presented, though not entirely satisfactory, were, however, sufficient to justify a further investigation as to the value of this subcutaneous laxative, particularly in view of the prolonged nature of the action excreted throughout a period of several days.

The patients, indicated on the table presented below, were selected cases of chronic constipation obtained from the medical dispensary of the Johns Hopkins Hospital through the courtesy and assistance of Dr. McCrae and the other members of the dispensary staff. Only male patients were selected in whom the symptom "chronic constipation" constituted the chief cause of complaint. This symptom varied in the different individuals to all degrees of severity, and had persisted for periods varying from weeks to twenty years. Many of the patients had been returning to the clinic for months or years, never having a bowel movement without resorting to drugs. Some responded well to daily doses of cascara, to pills, or to various forms of teas, while others had derived little or no benefit from any form of previous treatment.

Under aseptic precautions each of these patients was given 0.4 gm. of phenoltetrachlorphthalein, 20 c.c. of the freshly prepared oil preparation, subcutaneously in the gluteal region. Each one was also supplied with two glycerin suppositories and was asked to follow these rules: (1) Drink water freely; (2) eat some fruit each day; (3) take walking exercise every day; (4) go to toilet night and morning and stay five to ten minutes if necessary; (5) use a glycerin suppository at the expiration of thirty-six hours if the bowels have not moved, and use the other suppository later if thirty-six hours again pass without an evacuation.

PATIENTS RECEIVING 0.4 GM. OR 20 C.C. OF OIL PREPARATION

Patient.	Day of injection.	Days following injection. 1	2	3	4	5	6	7	2d week.	3d week.	Final result.
7 M. K.	..	1	1	1	0	1	1	..	..	..	Constipation returned.
8 H. C.	1	1	2	1	1	1	1	1	4	3	Constipation returned.
9 J. C.	..	1	2	1	2	1	1	2	7	7	No return of constipation.*
10 I. B.	..	1	0	1	1	1	2	1	8	7	No return of constipation.*
11 J. S.	..	1	1	1	1	2	1	1	4	3	Constipation returned.
12 H. G.	1	2	2	3	2	2	2	1	7	7	No return of constipation.*
13 J. L.	..	0	0	0	..	..	..	..	..	..	No effect.
14 I. W.	..	1	1	2	0	1	0	1	3	2	Constipation returned.
15 L. L.	..	2	1	0	1	0	1	..	3	3	Constipation returned.
16 J. S.	..	1	1	0	1	1	0	1	12	8	No return of constipation.*
17 L. K.	1	1	0	1	1	1	0	1	6	7	Constipation returned.
18 J. B.	..	3	1	1	1	1	0	1	7	7	No return of constipation.*
19 F. T.	1	1	0	1	1	1	1	1	5	6	No return of constipation.*
20 †	1	2	2	2	2	2	2	0	..	..	Result not known.
21 O. N.	..	1	1	1	1	1	1	1	..	..	Constipation returned.
22 J. W.	1	1	1	1	1	1	1	1	7	7	No return of constipation.*
23 W. H.	..	1	2	2	1	..	..	..	..	..	No return of constipation.*
24 B. W.	1	2	2	3	Took cascara						.....
25 L. M.	..	1	1	0	0	..	..	..	..	..	Constipation not relieved.
26 A. B.	1	2	1	1	1	1	1	2	8	8	No return of constipation.*
27 J. W.	..	2	2	2	2	2	2	1	14	14	Constipation returned.
28 W. B.	..	0	0	0	..	..	..	..	..	..	No effect.
29 W. B.	1	1	1	1	1	1	1	1	7	7	No return of constipation.*
30 J. J.	..	1	1	1	0	0	..	..	..	..	.....

* No return of constipation after periods varying from two to six months.

† Dr Rosenthal's patient.

One of the most striking phenomena revealed by the study of this table is the prolonged nature of the action produced by this drug. It is not claimed that one injection will produce purgation for more than four or five days, but that it will do this, and that without the aid of psychotherapy, has been proved by numerous experiments on dogs.

It was hoped that the success attending the observance of the hygienic and dietetic rules outlined above, during the period in which daily movements of the bowels were being induced by the chlor body, would encourage the patients to continue in the observance of these rules, and that they would thus obtain a permanent cure without further resort to drugs. This was realized in ten patients out of the twenty-five cases of chronic constipation. That the total results recorded during the first week following injection are not due to psychic, hygienic and dietetic treatment is proved by the fact that many of these same patients were old dispensary cases who had probably had the same suggestions and advice on numerous previous visits as well as by the similar results, already mentioned, which were obtained in animals.

It is very evident that phenoltetrachlorphthalein is not an ideal purgative. Several serious objections at once present themselves:

1. The insolubility of this drug in water.
2. The slight degree of its solubility in oil necessitating a large volume for injection.
3. The long time elapsing before the onset of its laxative action, which appears usually eighteen to twenty-four hours after administration of the drug.
4. The mild character of its action, which is rather laxative than purgative.

At the same time several redeeming features which make this substance of peculiar value must not be overlooked:

1. The prolonged nature of its action.
2. The absence of crampy pains and colic throughout the period of its action.
3. The constancy, at least in the cases so far studied, with which it has produced results.

Phenoltetrachlorphthalein, then, is efficient, nontoxic and non-irritant when administered as a subcutaneous purgative, but its insolubility in water and its low solubility in oil stand in the way of its wide application as such in practical therapeutics but do not detract from its efficiency when a subcutaneous purgative is indicated. It may prove of considerable value in certain conditions, as (a) in coma; (b) in marked gastrointestinal irritability which contraindicates the administration of a purgative by mouth; (c) among the insane, who often refuse to take any medicine by mouth and who fight vigorously against the administration of enemata; (d) in certain cases of chronic constipation, combined with hygienic, dietetic and psychic treatment.

Phenoltetrachlorphthalein is worthy of a trial in the field of abdominal surgery, when its introduction beneath the skin can be accomplished during the anesthesia without any pain whatever, where its mild prolonged laxative effect, e. g., a soft daily stool, starting on the day following the operation and continuing for a period of from four to six days, may possibly entirely dispense with the necessity of administering any other purgative by mouth during the first week subsequent to the operation.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. GILBRIDE AND ROWNTREE

DR. H. C. WOOD, JR., Philadelphia: Dr. Gilbride referred to a case of poisoning following injection of 15 grains of phenolphthalein. I would like to know whether he ever succeeded in tracing the authority for this report. I believe that Schwartz states that phenolphthalein is a compound of phenol and therefore a poisonous body. It is, however, a pure assumption that the phenol radicle will be liberated in the body; on the contrary, it seems to be a very stable compound and escapes through the kidney unchanged. I have injected intravenously into dogs doses equivalent from 60 to 100 grains in the human being without causing toxic symptoms; so I think we are justified in concluding that the drug is perfectly safe, except possibly in so far as some slight irritation of the kidney might follow its prolonged use. Dr. Gilbride quoted some authorities who believed that the action was due to a heightening of the osmotic function and a diffusion toward the intestinal tract. Others believed that because it acted, when administered hypodermically, it increased peristalsis. The evidence is strong against increase of peristalsis. My own experiments on dogs, and the fact that it does not gripe, both go to show that it does not have much effect on peristalsis. I have injected it into isolated loops of intestine in the dog and found practically all the phenolphthalein two hours later, showing that it is not absorbed to any great extent. I found that there was always a determination of fluid to the loop into which the phenolphthalein was injected and I conclude the action of phenolphthalein is a direct stimulation of the intestinal gland and consequent increase of the intestinal secretion.

I have observed one other fact, which is of practical importance; that is, an apparent great variation in the specimens of phenolphthalein. I have seen patients obtain phenolphthalein from one manufacturer and continue for two or three months to take half-grain doses with perfect satisfaction and then obtain another bottle and find that it takes three or four grains to obtain the same effect. This suggests that there is a great difference in the quality of the phenolphthalein of different manufacturers.

DR. L. G. ROWNTREE, Baltimore, Md.: So far as toxicity is concerned I cannot believe for a moment that 15 grains of pure phenolphthalein ever poisoned anybody. As Dr. Wood states, large doses can be introduced intravenously. Dr. Abel and I introduced enormous doses in our experimental work and never saw any effect except purgation. Tunnicliffe's observation on the depressive effect on the circulation we cannot bear out. We obtained a slight rise of blood-pressure following intravenous administration which continued for some time, probably a rise of 10 to 15 mm. In regard to the effect on animals as compared with the effect on man, many of the previous writers have pointed out the difficulty of purging animals. We could not purge rabbits, but we satisfied ourselves that we could purge dogs. Mention has also been made of the influence on flow of bile. There is no influence on the flow of bile, or any other secretions, intestinal secretion excepted, so far as we could make out in our studies. Its appearance in the urine is very constant after subcutaneous injection. This is markedly different from its tetrachlor derivative. This does not appear in the urine, no matter how large the dose. In connection with impurity of the drug we have had no experience. Our standard was Kahlbaum's.

DR. REID HUNT, Washington, D. C.: Professor Cushny, in discussing the origin of drugs, said that in the last forty years every new drug, with one or two exceptions, had come from a definite method of study and by experiments on animals. Only the antiseptics and purgatives had come in by direct clinical observation. It seems now that in the case of purgatives also the experimental method, the method pursued by Dr. Rowntree, is going to be of great value. Whether this tetrachlorphthalein is the purgative for which surgeons and physicians have been looking so long, Dr. Rowntree is certainly on the right track. I do not wish to disparage the contributions that manufacturers have made to the materia medica, but it is gratifying to know that the object of Dr. Rowntree's study was science. Dr. Rowntree has nothing to sell. His paper is the contribution of science. It is to be hoped that other pharmacologic laboratories will take up similar lines of work.

DR. JOHN J. GILBRIDE, Philadelphia: I did not trace out that case of poisoning from 15 grains of phenolphthalein to which Dr. Wood has referred, but I accepted the statement made in THE JOURNAL.

SUTURE OF BLOOD-VESSELS WITH HUMAN HAIR *

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One drawback to suture of blood-vessels is the difficulty of obtaining proper suture material, as silk of suitable fineness and smoothness and tensile strength is not readily procured. To meet this difficulty we decided to test a material universally distributed, namely, human hair.

Light brown hairs of medium fineness about 8 inches long were tested as to tensile strength and found to be stronger than the silk previously employed. One of the carotid arteries of a recently killed dog was divided and the ends reunited with the hair as suture material. Hair proving satisfactory in this preliminary operation, a number of hairs were then threaded, and tied into sterile needles (No. 14 cambrics) and placed in 10 per cent. aqueous formalin.

A medium-sized dog was anesthetized and the left common carotid artery and corresponding internal jugular vein were exposed and divided. The peripheral end of the artery and the central end of the vein were ligated and the remaining two free ends were united by means of the needles and hairs sterilized in the formalin solution. The encircling suture was continuous and all of the coats of the vessel were penetrated and included in each stitch. No difficulty was experienced in using the hairs as sutures, and the result was good, the wound healing *per primam intentionem*. The pulse remained good.

Fig. 1.—Central end of left common carotid artery anastomosed to the peripheral end of the left inferior jugular vein with human hair.

Five and one-half months later the animal was chloroformed. On exposure the walls of the vessels appeared to be continuous. The circulation was active. The specimen was removed, slit open longitudinally and photographed (Fig. 1). The line of suture (a) could hardly be seen as the intimal surface was perfectly smooth and glistening. The longitudinal creases in the venous portion of the segment indicate clearly the line of anastomosis.

A few remarks on technic may be of interest.

No. 12 cambric needles can usually be obtained at dry-goods stores, and on medium-sized vessels may be used with good results, though for end-to-end suture we prefer No. 14, while for small vessels No. 16 needles. In purchasing such needles the common small-eyed variety should always be insisted on.

Figure 2 shows manner of tying thread or hair in needle and mounting on small slip of paper for convenience in handling, sterilizing, etc. The perpendicular dotted lines indicate where the paper may be folded over the needle and thread for protecting them. For immediate use, we have found an ordinary microscope objective box quite satisfactory as a container for the needles during sterilization and on the operating table until ready for use. The box is filled about two-thirds full of paraffin oil and the papers holding the needles as shown are dropped in with or without folding. The box top, which is fitted inside with a tight-fitting disc of cork, is then screwed on and the whole placed in the sterilizer, and boiled and handled with the instruments.

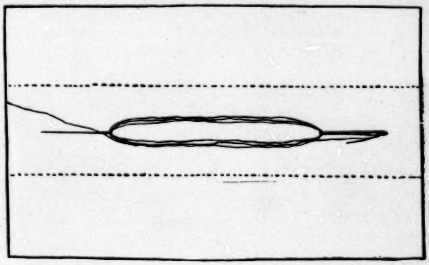

Fig. 2.—Thread or hair tied in needle and mounted on small slip of paper for convenience. Dotted lines show where paper may be folded over needle and thread to protect them.

Shortly before use the threads are unwrapped and, with the needles and papers, laid parallel on a smooth cloth, or, better still, a small square of black rubber sheeting or oilcloth. Contact with lint is carefully avoided, especially if silk or other spun thread is used.

Figure 3 shows the paper package containing needle and thread as prepared in Figure 2, sterilized and placed in glass tube containing sterile (or antiseptic) paraffin oil and the tube sealed. Thus prepared it may be kept indefinitely. When wanted for use the tube can be broken at the file mark and the contents removed in the ordinary way. Three or more such needles and thread may be placed in a tube, three being the number ordinarily required for making a complete circular vascular suture.

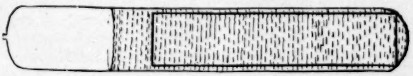

Fig. 3.—Paper package containing needle and thread, prepared as in Figure 2, in sealed glass tube containing sterile or antiseptic paraffin oil.

In conclusion, we desire to state that the use of human hair for the above purpose was suggested to the senior writer C. C. G. in 1905, by Dr. A. W. McAlester of the University of Missouri.

* From the Physiological Laboratories of Washington and Pittsburg Universities.

Artery Anesthesia.—Mention has previously been made in these columns of Goyane's method of regional anesthesia by injection of the anesthetic into an artery between two tourniquets after winding the limb from below to expel the blood. The principle is similar to Bier's vein anesthesia. Goyane reported in November, 1908, both experimental research and the application of the method in two and now has an experience of twenty cases. The *Siglo Medico*, Oct. 9 and 16, 1909, has republished his first communication on the subject to the Madrid Medical Academy. He says he has had no mishaps since and thinks the absence of valves in the artery renders the technic superior to the vein method (described in THE JOURNAL, May 1, 1909, page 1466).

A METHOD OF AMELIORATING RENAL COLIC

REPORT OF AN ILLUSTRATIVE CASE *

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ST. LOUIS

Few who have practiced in genito-urinary surgery for any length of time have escaped the soul-harrowing descriptions of the tortures of renal colic, as given by sufferers from that condition. It will, therefore, be needless to present any apology for rehearsing an experience that occurred to me during the recent winter, if the

Fig. 1.—First radiograph taken, not accompanied by ureteral catheterization, showing four shadows, apparently three in the bladder and one in the left ureter.

plan of action adopted at that time serves others as well as it did me. In effect, it promptly and readily cleared up a situation that was rapidly becoming serious, if not dangerous; and postponed for a more eligible time an operation that, if done earlier, might have brought calamity to the patient, instead of the relief that it finally occasioned. A brief history of the case follows:

Fig. 2.—Second radiograph, with ureteral catheterization and styletted catheters; showing three stones in the bladder, and the fourth shadow three-fourths of an inch from the ureter, instead of within it.

History.—A. D., an unmarried woman, aged 25, nurse, previously strong and healthy, began in the fall of 1907 to suffer from severe pain in the right side of the abdomen, embracing the uretero-appendiceal regions. After a time, during which there was much suffering, elevation of temperature, chills, etc., the condition was diagnosed as appendicitis and the appendix was removed by a capable surgeon early in 1908. But the operation evoked no relief, and for the following nine months there was repetition of the previous suffering. Occasionally there was hematuria.

Radiographic and Cystoscopic Examination.—In September, 1908, a radiograph was taken by Dr. R. D. Carman, a print of which is herewith shown (Fig. 1). As will be observed, it shows three shadows in the median line, close together, and a fourth to the left, low down, in a region that might readily embrace the lower end of the left ureter. As a result of this finding, apparently indicating calculi in the lower urinary tract, three in the bladder and one in the left ureter, I was called into the case, in September, 1908. Not accepting the delineation of the *x*-ray as positive or final, I insisted on the use of the cystoscope, styletted ureteral catheters, plus the *x*-ray. The point proved well taken. Immediately on introducing the cystoscope, three stones about the size of a pea were plainly seen lying in the *bas fond* or retrotrigonal fossa of the bladder. Then, ureteral catheters containing copper wire stylets were passed up the ureters, and Dr. Carman took another *x*-ray picture. The result, shown in Figure 2, is impressively instructive. The four shadows are there, as in the previous negative, but the fourth one is removed at least three-quarters of an inch from the left ureter, as indicated by the shadow of the wire, and is not in that organ at all. Its outline and general appearance are very similar to the shadows of the three genuine stones contained in the bladder, so that, so far as the *x*-ray is concerned, no differentiation was made by it; but by proof of cystoscope, styletted catheter and *x*-ray, it was clearly shown to be no ureteral calculus, but probably was only a phlebolith or a calcified gland—nothing of import. In addition to showing the three stones that had descended from the upper tract, the cystoscope showed whence they had come. The left ureteral orifice was normal in

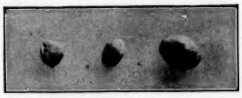

Fig. 3.—The three stones after removal through the operative cystoscope.

appearance, while the right was large and patulous and had plainly been the avenue of egress for the stones; which finding was further confirmed by analysis of the two urines separately drained. That from the left was approximately healthy, while that from the right contained blood and pus corpuscles and non-gonorrheal diplococci.

The diagnosis then made was of small stones in the bladder, with pyelo-ureteritis on the right side resulting from their having existed in the upper tract for a year or more previously.

Treatment and Course of Disease.—The three stones were first removed, by means of my operative cystoscope and alligator forceps, no preliminary cutting or dilating having to be done. They are illustrated, full size, in Figure 3. Afterward, prompt, marked and prolonged relief followed the regular irrigation of the right renal pelvis and ureter with argyrol solutions of varying strength. The patient visited her home in the country, gained in weight and general health, and experienced no more pain in the side; so it was deemed permissible for her again to pursue her occupation of nursing, which she resumed in December. This, however, proved unfortunate; the pyelitis was reawakened, hematuria reappeared, the temperature became elevated, urinary chills and infected urine indicating the infection that had recurred. Pelvic lavage would apparently do good for a time, but relapses continually recurred. Moreover, her old enemy, severe renal colic on the right side, returned and became worse than ever, requiring repeated hypodermatic injections of morphin for even temporary relief. She was soon taking from two to four grains in twenty-four hours. But, worse still, her urine dropped to ten or fifteen ounces in twenty-four hours, and the conditions became precarious. She was not deemed strong enough at that time to make lumbar nephrotomy attractive, and she had not previously given her consent to the measure. A half or three-

* Read before the American Urological Association, Atlantic City, June 6, 1909.

quarters of a grain of morphin gave relief only for an hour or two; and sleep has been reduced to about one or two hours in twenty-four. Something radical and effective, evidently, had to be done, and shortly. I applied a measure that occurred to me in the midst of my perturbation, and which, so far as I am aware, has not been previously employed. The patient was placed on the cystoscopic table, a catheter was passed to the right renal pelvis, and 1 per cent. solution of alypin was injected directly into the pelvis, 20 minims in amount. Within ten minutes the patient expressed herself as being greatly relieved; by fifteen minutes no pain remained. The catheter was withdrawn and she had the first good sleep she had obtained for several days or nights. On the following day the renal colic returned, but in somewhat lessened severity; nevertheless, in order to prevent a recurrence of the siege of pain that had formerly prevailed, the ureteral catheter was reintroduced and 1 per cent. alypin solution was again injected, fifteen minims, promptly producing the same marked relief as on the previous day. This time, in order to avoid the necessity of repeated introduction of the ureteral catheter, it was allowed to remain in the ureter, held there by means of adhesive plaster, emerging from the urethra and draining into a sterile receptacle between the legs. When pain threatened to recur, one of the nurses present would inject ten minims of the alypin solution, which attained the desired result in every instance. After three days the crisis seemed to be over; the attacks ceased in their frequency and intensity; the catheter was withdrawn and all menacing conditions disappeared. In February, with a recurrence of the pelvic inflammation, the patient's consent to an operation was obtained; exploratory nephrotomy was carried out on the right side. The renal pelvis was found sharply inflamed and moderately dilated, but no foreign body or stone was found in it, and there was no obstruction to the passage of a catheter downward into the bladder (none had previously been discovered in passing the catheter upward along the same tract). The pelvis was drained by cigarette tube, the kidney being attached to the adjacent muscles. Recuperation was satisfactory, the urine cleared of infection and clouding, and the patient again was able to be about. At the writing of this report, April, 1909, there was no disturbance from the kidney or ureter of any kind. From forty to fifty ounces of clear, healthy urine were being secreted daily.

Aside from the interesting features of diagnosis in this case, the one that I wished to present for attention was the expedient adopted for relieving the excruciating renal colic that recurred, persisted and actually threatened the life of the patient, through the debilitated condition to which she had been reduced. The plan was easily applied, without the least difficulty or objection on the part of the patient; and after she had experienced her first relief from it she was highly in favor of it. The release from pain seemed to have a beneficial effect on the renal secretion, the amount of urine soon afterward reaching thirty-five or forty ounces, instead of fifteen, the amount she was passing during the painful period. Used in the amount finally adopted, from ten to fifteen minims of 1 per cent. solution, the alypin caused no depression or bad effect, and yet gave the relief in each instance.

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The Thyroid in Cretins.—In the true cretin the gland histologically presents marked overgrowth of fibrous tissue, with a corresponding disappearance of the epithelial elements, while in the preclinical stage the gland presents a marked epithelial hyperplasia with relatively slight increase in the supporting fibrous tissue. Thus with the progressive epithelial hyperplasia finally giving way to the fibrous overgrowth as typifying the anatomic changes in the cretin, or myxedema thyroid, it may be said that the symptom-complex varies with the degree of epithelial hyperplasia and fibrotic atrophy.—D. Marine and C. H. Lenhart, in *Archives of Internal Medicine.*

PSEUDOPERITONEUM, VARICOSITY OF THE PERITONEUM AND SCLEROSIS OF THE MESENTERY

WITH A PRELIMINARY NOTE ON DEVELOPMENT OF FIBROUS TISSUE *

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KANSAS CITY, MO.

It was formerly common to compare the peritoneal cavity with a lymph space. This comparison was unfortunate, as it led to a misconception of the nature of the peritoneum. Thanks to the researches of Dr. Sabin and others, our understanding of the lymphatic system is

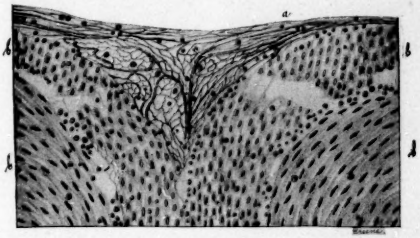

Fig. 1.—Intestine of dog; specimen removed after twenty-four hours; a, fibrin bundles extending from one intestinal layer to another; b, b, longitudinal muscle layer; c, c, circular layer.

now much more complete. The comparison of the peritoneum to the lymphatic system was due to the fact that there is a close resemblance in structure between the endothelium of the lymphatics and that of the peritoneum. Functionally the comparison is not apt. The peritoneum is the protective covering of the abdominal viscera—nothing more. In order that this function may be fulfilled, the peritoneum must not only serve as an

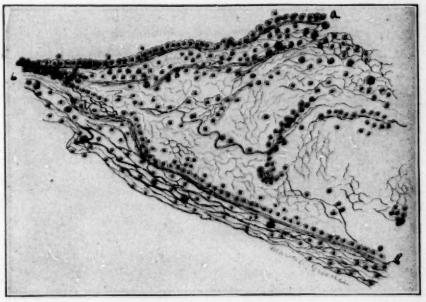

Fig. 2.—Fibrin bundles forming about a corn-pith sutured to intestine of a half-grown rabbit. Specimen removed after six hours. Mallory's aniline-blue stain; a, endothelial cells; b, b, fibrin bundles.

efficient covering, but provision must be made for the movements of the abdominal viscera. This is accomplished by the viscid fluid with which the peritoneum is constantly covered. The peritoneum, therefore, if it must be compared with any other structure of the body,

* Read in the Section on Surgery of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

can with greater justice be compared with the synovial membrane of the joints.

The correct understanding of the pathologic changes of the peritoneum with which this paper deals is so intimately connected with certain fundamental processes relative to the formation of fibrous tissue in general, and wound healing in particular, that it seems desirable to

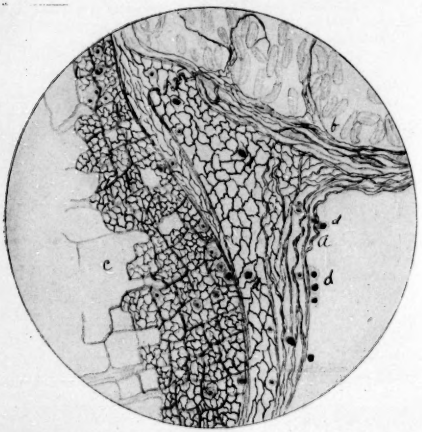

Fig. 3.—Half-grown rabbit; specimen removed after six days. Van Giesen stain. A, connective tissue fiber bundles extending within and from corn-pith (c) to intestine (b); d, endothelial cells.

preface my remarks on the peritoneum with a somewhat extended preliminary note on my researches in the formation of connective tissue fibrillæ.

The prevailing theories of the formation of fibrous tissue, it will be remembered, are (1) that connective tissue is formed within the cell (fibroblast) and afterward becomes extracellular; (2) that the fibers are primarily extracellular, being formed by the cells by a process analogous to cell secretion. My researches have con-

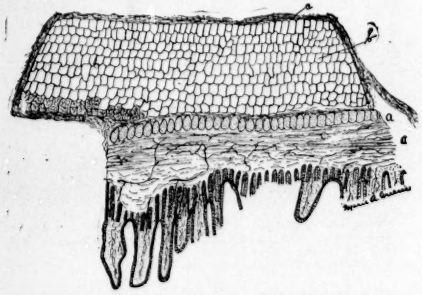

Fig. 4.—Schematic drawing of a four weeks' old specimen of half-grown rabbit. Endothelium not shown. Corn-pith stitched to the peritoneum and covered with amorphous exudate; a a, intestine; b, corn-pith; c c, fibrillæ covering the corn-pith.

vinced me that the cell is not primarily the active agent, but that the initial processes are chemical and are identical with those of blood coagulation, the cell playing an entirely secondary rôle.

My chief material for study has been the formation of fibrous tissue in wound-healing, particularly of wounds of the peritoneum. Embryonic material has been studied for comparison. Several anatomists who have followed my studies have urged the claims of embryonic material as the most suitable for these studies. But in such tissue the deposition of the fibrils and their change into fibrillæ are, to a very great extent, simultaneous processes which obscure the fundamental process at work. The formation of fibers in wound-healing, on the other hand, progresses with great rapidity and is less complicated than in embryonal tissue and is, therefore, more easily followed. Since the initial process of all wound-healing is instituted by the substance beneath the endothelial cells, the healing of peritoneal wounds should give us the best material for the study of wound-healing. Experience has proved this to be the case. The chief process in wound-healing is the formation of fibrous tissue. The formation of higher types of tissue occupies a less important place. Each separate step in the formation of fibrous tissue should stand out more clearly in wound-

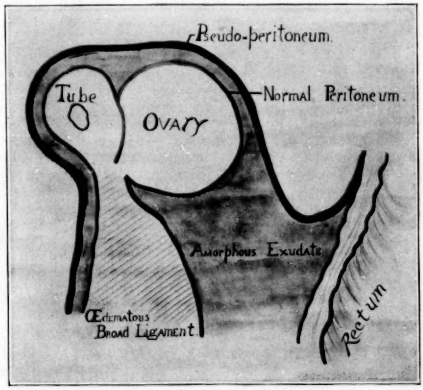

Fig. 5.—Schematic drawing representing a cross-section of an ovary and tube with acute gonorrheal salpingitis of two weeks' standing. The inflamed organs are represented as being covered by an exudate which is covered by a pseudoperitoneum.

healing, therefore, than in the developing embryo. The relation of the formation of fibrous tissue in wound-healing and the formation of identical or similar tissue in the ordinary course of development need not concern us here.

The healing of the peritoneum after an intestinal anastomosis has been made is the peritoneal process which has been most studied in the past and may, therefore, be selected as the one most likely to be understood. When an anastomosis is made the angle resulting from the approximation of the two peritoneal surfaces quickly fills with an amorphous exudate. After a short time, beginning within a few minutes and becoming well developed in one or two hours, this amorphous exudate is converted into fibers. These fibers extend from peritoneal surface to peritoneal surface with mathematical exactness (Fig. 1). Similarly, when a foreign body (a bit of corn-pith or cork) is stitched to a peritoneal surface, it is quickly covered with a similar amorphous exudate (Fig. 4), which also soon forms into fibers. These fibers cover the foreign body without interruption.

The character of this amorphous exudate has not been determined. Its chief source is immediately subendothelial; it is very rich in chlorids and is, as stated in a previous paper,[1] the substance which caused so many failures in the surgery of blood-vessels.

With the formation of the exudate and its conversion into fibers the cells appear to play no part, for the process may take place before the advent of cells. Usually, however, sooner or later cells appear. The number of cells varies greatly, depending on the amount of reaction undergone by the surrounding tissue. The important point is that these bundles appear fully developed morphologically before the advent of cells. Early these bundles stain characteristically by both Mallory's and Weigert's stain and may be regarded without hesitation as fibrin bundles. The gradual change of the fibrin bundles into adult connective tissue fibrillæ can be followed best by means of Mallory's stain. Certain bundles, usually those nearest the surface, change first from the yellowish color characteristic of fibrin to the blue characteristic of fibrous tissue. The fibers which first appear are not replaced by the cells, but those fibers nearest the cells usually undergo the changes earlier. It would seem

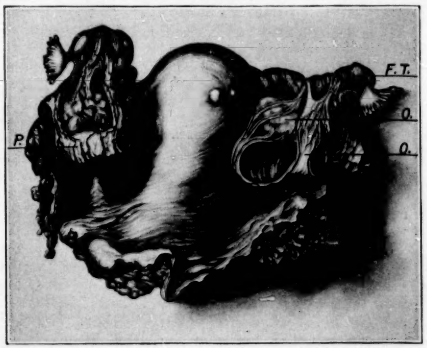

Fig. 6.—Empty capsule of pseudoperitoneum, the mass which it encapsulated having been absorbed. Postmortem specimen; P., pseudoperitoneum; F. T., Fallopian tube; O., ovary.

from this observation that the cells are active in producing the changes manifest by the changed tinctorial reaction. In some regions the changes appear to take place without immediate contact with cells.

The number of cells present vary in number and character. In Figure 2, a six-hour specimen, they are more numerous than in Figure 1, a twenty-four-hour specimen. Their character likewise varies. If the irritation is very slight they are nearly all mononuclear in character, but if there has been rough handling of the tissue the ordinary polynuclear cells may predominate. The former, it seems certain, are the important ones. It is they, at least, that assume a place on the surface (Fig. 2, a) and by a gradual metamorphosis become the endothelial cells of the new peritoneum, and are those intimately associated with the tinctorial changes in the fibrin fibers. As to the nature and origin of these cells it may suffice for the present purpose to say that my studies have confirmed, in a great measure, the studies of Maximow.

In a previous paper[2] I called attention to the fact that the factors which cause the blood to lose the power of coagulation likewise prevent wound-healing. Briefly restated, I found that by poisoning with phosphorus or by the injection of peptone according to the direction of physiologists for the destruction or inhibition of the coagulability of the blood, wound-healing is prevented. In intestinal anastomosis, for instance, made immediately before or after an animal receives 0.3 gm. per kilo

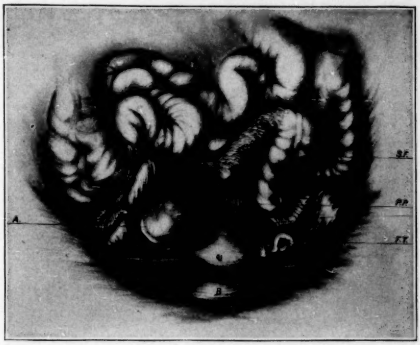

Fig. 7.—Specimen from patient operated on at Southside Hospital. Pseudoperitoneal membrane binding the sigmoid to the broad ligament and the rectum to the uterus. The tubo-ovarian abscess on the right is covered with a pseudoperitoneum A., abscess; S. F., sigmoid flexure; P. P., bands of pseudoperitoneum; F. T., Fallopian tube; U., uterus; B., bladder.

weight of peptone intravenously or intraperitoneally no attempt at healing takes place. The same is true, it may be stated as a matter of practical interest, after the use of fresh pancreatic extract, or by the formation of a crushing wound of the pancreas during the course of the abdominal experimentation. I have recently repeated these experiments with a complete confirmation of my former results. These experiments, it seems to

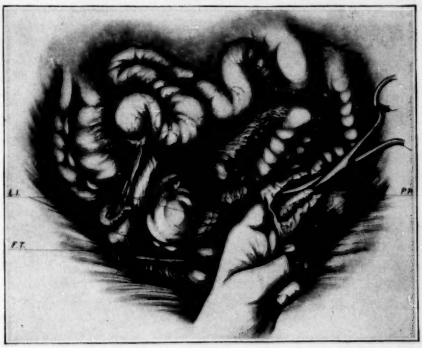

Fig. 8.—Method of identifying the separate layers of peritoneum and line of incision for the removal of the tubo-ovarian abscess. L. I., dotted line of incision for formation of peritoneal flaps; F. T., Fallopian tube; P. P., anterior and posterior layer of the pseudoperitoneum.

me, materially strengthen the evidence of the positive tinctorial reaction with Mallory's and Weigert's stains and leave no doubt as to the identity of the preliminary process of wound-healing and blood coagulation.

1. Hertzler, A. E.: Tr. West. Surg. Assn., 1903, xiii, 265.
2. Hertzler, A. E.: Tr. West. Surg. Assn., 1904, xiv, 76.

I. THE PSEUDOPERITONEUM

As previously stated, when a foreign body is stitched to the peritoneum an exudate soon covers the body and coagulating weaves over it a network of fibrin bundles (Fig. 4). These by the changes above noted become adult connective tissue fibrillæ, the new cells covering the surface become endothelium, and new blood-vessels form from the border and ramify over the surface. In this manner there is formed over the foreign body a new membrane, identical with the peritoneum in structure and in function, but entirely distinct from it. This membrane I have called the pseudoperitoneum.

A great variety of pathologic processes simulate the action of the foreign body in the experiment. The purulent exudate about a gonorrheal tube, as represented schematically in Figure 5, is a familiar example. The purpose of the exudate is protective, but when this protective character is negated by toxins it becomes a foreign body. This foreign body institutes the same series of processes that took place in the experiment with the corn-pith and ultimately a fibrin layer is formed over the entire mass of exudate. If surrounding

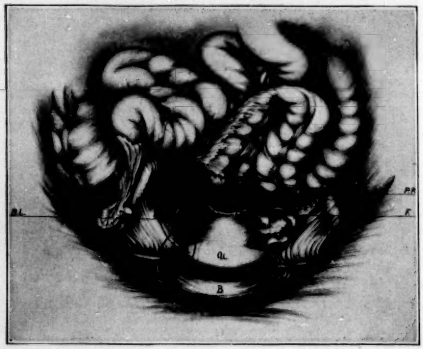

Fig. 9.—Closure of wound after severing of the pseudoperitoneal planes and the removal of the diseased tube and ovary. B. L., broad ligament in process of closure; P. P., two layers of pseudoperitoneum inverted by Lembert suture; F., flaps not yet united, but ready for closure; U., uterus; B., bladder.

intestines and omentum are involved in the process, this involvement is accidental and does not affect the underlying principles. The fibrin layer undergoes the same series of changes as indicated in the experiment, forming a membrane, that is to say, a pseudoperitoneum, which surrounds the mass; in other words, encapsulation has taken place. The foreign body once so encapsulated may become absorbed, leaving the capsule (i. e., adhesions) as a useless or deleterious structure (Figs. 6 and 10), but when the foreign body remains permanently, as in a tubo-ovarian abscess (Fig. 7), the new membrane continues in its protective capacity. Processes similar to those about the ovary occur wherever inflammatory processes appear (Fig. 10).

Parenthetically, it may be noted that when the irritation is just sufficient to cause an exudation of the fibrin-forming material, but where no toxins are produced to destroy the fibrin-forming elements, permanent union of the neighboring structures will appear. On the other hand, when the exuded material is acted on by toxins, precipitation of the fibrin forming elements takes place instead of the formation of fibrin. In this way a mechanical agglutination of the opposing surfaces may result, forming a temporary walling-off but not of fibrous union—at least, not according to the process detailed, that is, with a pseudoperitoneum. The precipitated mass is afterward absorbed and the agglutinated organs become free. This corresponds to the division of fibrin into the fibrinous and the granular as made by the physiologists. The fibrinous alone is capable of formation into fibrous tissue. The granular is always absorbed. But if the power of forming even a precipitate is lost there is no walling-off of the infective process and a diffuse inflammation is the result. In harmony with these observations is the action of bacterial exudates. Certain bacteria (gonococcus, pneumococcus) favor fibrin formation, while others (streptococcus, colon bacillus) prevent it. This explains why infection in the presence of digestive ferments (wounds of the upper portion of the intestinal tract and pancreas) are so little likely to form adhesions.

The clinical behavior of the pseudoperitoneum depends on whether or not the protective function is permanently required; that is, whether or not the foreign body it was formed to cover remains. If no longer of use because of the absorption of the foreign body—that is, the exudate—it exerts a deleterious effect just in proportion as it limits the function of the structures to which it is attached (Figs. 6 and 7). If by such limitation of motion it causes a disturbance it should be removed (Fig. 8). In this removal its peritoneal character should be remembered. The various layers should be identified in order that all raw surfaces may be avoided by inverting the severed edges, as indicated in Figures 8 and 9. When, however, the pseudoperitoneum is still exercising its protective function, that is, when the exudate has not been absorbed, and it becomes necessary to remove the object which has made protection necessary (Fig. 7), the membrane must be dealt with in order that the defect resulting from such removal of the foreign body can be covered by the pseudoperitoneum (Fig. 9). If it is kept in mind that such coverings are really peritoneal in structure and function, the expression "tearing up adhesions" will not be heard so often. If properly planned, the removal of these membranes or the removal of the foreign body beneath them can nearly always be accomplished without leaving a surface denuded of peritoneum (Figs. 7, 8 and 9). Each surgeon will employ the technic which corresponds most nearly to his usual custom. I have recently employed the very fine material used by Carrel for vessel work instead of the 00 gut formerly employed.

II. VARICOSITY OF THE PERITONEUM

Closely resembling the preceding in appearance, though very different in its pathogenesis, is a condition of the peritoneum in which the chief changes are in the blood-vessels. The peritoneum appears as a veil of blood-vessels which obliterate more or less the anatomic structure beneath, as, for instance, the tenia of the colon is obscured in Figure 11. The connective tissue is affected in varying degree, but always the vascular changes are of chief importance, a fact which does not appear in the figure because the drawing was made from a post-mortem specimen. If there is no increase in the connective tissue the peritoneum simulates a mesentery to the distended veins. This appearance is familiar to every one, as it occurs in a slightly modified form in the omentum when it is attached to an ovarian cyst with twisted pedicle or to a crippled fibroid. The vessels which are dilated are the peritoneal or omental vessels

as distinguished from those of the mesentery (Fig. 11) and are the result of the distention of what were normally very minute vessels. As seen in the figure, the general direction is from the periphery of the abdomen toward the mesenteric root. Usually the peritoneum is freely movable on the underlying structures because of the changes which have occurred in the subperitoneal connective tissue.

The causative factors may be divided into three classes:

1. When seen in the process of formation these varicosities are observed in the region of active inflammatory processes. There is, in addition to the dilatation of the vessels, a subperitoneal exudation, lifting up the membrane from the underlying organs, forming, in fact, a subperitoneal edema comparable to similar conditions under the skin. We might speak of it, therefore, as an acute subperitoneal cellulitis (as seen about the cecum in appendicitis).

2. As the result of obstructive processes about the root of the mesentery, there may be a simple obstruction, as when a benign body is obstructing the mesenteric root, or the process may be a reactive one as seen when inflammatory (cholecystitis, gastric ulcer) or cancerous processes are located in that region. In this type the mesenteric vessels are as likely to be affected as the peritoneal. We might speak of this type as "milk-leg" of the peritoneum.

3. In some instances—and those are the majority—the causative factor is no longer plainly apparent. There is, however, nearly always, an appendix which presents some of those minute changes, capable, perhaps, of detection by the microscope only, which are generally regarded as expressions of a previous acute process. In the upper abdomen there is usually a gastric scar or quiescent gall-stones with tell-tale adhesions. This is the type from which the term "varicosity of the peritoneum" was suggested and is quite analogous pathologically to varicocele elsewhere. This type includes the two preceding, the difference being that the causative factor is no longer active, and the lesion is no longer an active process, but a final result.

The pathology is expressed in a hyaloid degeneration of the subperitoneal connective tissue. The vessels may have thin walls, or the walls may be thickened, if a reactive factor was prominent in the course of the development of the process. Whichever obtains, there is a hyaloid change in the connective tissue of the vessel-walls as determined by connective-tissue stains. There is frequently a colloid-like exudate in the meshes of the subperitoneal connective tissue which causes the peritoneum to be lifted from the underlying organs (Fig. 11). Sometimes there is in this tissue a production of fat characterized by the small size of the globules and the indifferent staining by Sudan III.

The clinical symptoms are in harmony with the pathologic anatomy. There is evidence of local passive congestion which may find expression in disturbance of function of the underlying organs, for instance, autointoxication, as indicated by indican in the urine, or by constipation or diarrhea or the two alternating. The most pronounced symptoms are due, however, to splanchnic irritation, usually manifesting itself at the peripheral nerve plexus or at the ganglia from which the nerves spring (*dyspepsie appendiculare*, Longuet) or, which is the most important of all, in a pronounced splanchnic neurosis (appendiceal neurasthenia, Schauman).

The treatment is dependent on the etiology. If, as is the case in the vast majority of instances, the condition is due to an affection of the appendix, its removal, as advocated by Howard Hill[3] several years ago, and since then by Longuet and Carles, relieves the symptoms. If there is disturbance about the mesenteric root, usually due to cholecystitis, the removal of the cause of disturbance whenever possible is indicated. In some instances the removal of the causative factor is insufficient, for the changes in the vessel-walls may be permanent. In these instances the general principles applied to varicosities in general, the obliteration of the vessels, may be applied. I have sought to accomplish this by means similar to those employed in varicocele of the scrotum and broad ligament. By excision of a segment of the vessel-bearing membrane and covering the defect with peritoneum a permanent obliteration of the vessels is accomplished without leaving a denuded area. In the few cases in which this method has been employed the

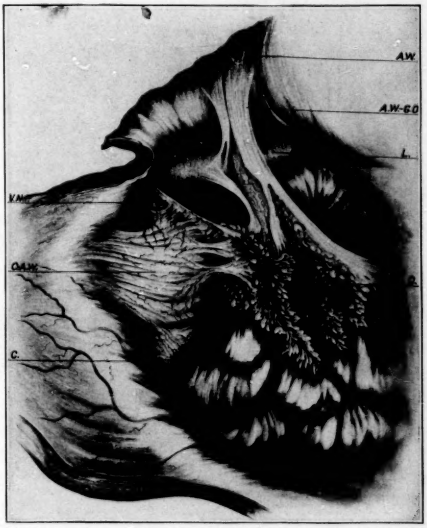

Fig. 10.—Pseudoperitoneums extending from colon to abdominal wall, colon to mesentery, mesentery to liver and from liver to abdominal wall. Over the cecum and at the hepatic flexure of the colon vascular dilatation (varicosities) are shown. V. N. P., vascularized normal peritoneum. C. A. W., pseudoperitoneal bands from cecum to abdominal wall; C., cecum; A. W., abdominal wall; A.W.-G.O., pseudoperitoneal bands from abdominal wall to great omentum; L., liver; O., omentum.

intestinal as well as the nervous symptoms have been relieved. Probably the simple removal of the appendix would have accomplished the same result (Carles). J. N. Jackson has recently[4] proposed the removal of the entire peritoneum involved. Because of the changes in the subperitoneal tissue above noted, the technic is easy and alluring, but, since such removal leaves the colon devoid of a protective covering, few operators will care to imitate the procedure.

3. There has just come to my hand a reprint of an article by Dr. J. F. Binnie, reprinted from the Monthly Cyclopedia of Practical Medicine, 1905, viii, 341, in which he describes under the title "Pericolitis Dextra" the condition here under consideration. It seems from this paper that this author is the first to describe clearly and definitely this condition.

4. Jackson, J. N.: Tr. West. Surg. Assn., 1908, xviii, 287.

III. MESENTERIC SCLEROSIS

The condition was first described by Virchow[5] under the term *Mesenterialschrumpfung*. He regarded it as a chronic peritonitis of the mesentery. In this condition there is an increase of the connective tissue of the mesentery resulting in a contraction with a subsequent distortion of the intestine. The sigmoid is the portion of the intestine usually involved, but any part of the large or even the small intestine may be involved. The mesentery, normally thin and elastic, becomes thick and opaque, even tendon-like (Brehm). The vascularity disappears and all elasticity is lost.

The chief interest here centers about the question of the pathogenesis. Most writers agree that the beginning is along the line of attachment of the mesentery to the intestine. The point of beginning, according to Graser, is at the point where the vessels enter the intestine.

Fig. 11.—Varicosities of the peritoneum covering the lower right quadrant. At the hepatic flexure of the colon and over the ileum the peritoneum is raised up in bands which simulate pseudoperitoneal bands. The appendix was sclerotic and adherent to the pelvic floor. G. B., gall-bladder; L., liver; A. C., ascending colon; C., cecum; O., omentum turned up to show mesentery; M. V., mesenteric veins; P., thickened bands of true peritoneum; A., sclerosed appendix.

Here small diverticula are present, which, from irritation of fecal masses, cause ulceration and infection of the mesentery (Hansemann). The only dissenting voice of note is that of Riedel. He believes that the process begins at the mesenteric root. In one patient observed by me the chief point of involvement was over the ureter in a case of chronic periureteritis from stone. Usually the processes about the mesenteric root, as I have seen them, gave rise to passive congestion and I have fallen under the second group of my classification.

The important point, on which all are agreed, is that the process is an increase with subsequent contraction of the connective tissue of the mesentery. It is important to bear in mind that the mesentery is made up not of peritoneum but of connective tissue, being covered merely by peritoneum. The peritoneum is not necessarily involved in the process, and in the early stages is not. When the process is extensive, it is true, the peritoneum is involved. But in the beginning, let it be repeated, the condition is a subperitoneal process.

The importance of a proper comprehension of the various pathologic processes to which the peritoneum and the underlying structures are liable is made acute, now that operations, most radical in their nature, have been proposed and carried out. The rough classification here tentatively proposed is an attempt to harmonize the results of the research laboratory, the dissecting-room and the clinic-room. The pseudoperitoneum, being an adventitious product, may remain as a mischievous structure requiring removal. On the other hand, it may still be performing the function for which it was originally produced. In each instance which of these conditions obtain must be determined before it is attacked. In any event, these pseudoperitoneums are not to be "torn up," but to be dealt with as peritoneum with the object of preventing the reformation of mischief-makers equal to those originally existing. The varicosities are the expression of a lesion elsewhere. The removal of such lesion may result in a cure. If not, an obliteration of the lumen of the vessels must be brought about. This must not be attempted by the removal of the entire membrane involved, because it is not a pseudoperitoneum and its removal leaves the underlying organ without protection. In the third type (the mesenteric sclerosis), if obstruction of the lumen is caused, a resection of the intestine may be necessary. If the offending tissue is band-like, subperitoneal section of such band will be possible if the peritoneum is not involved. In the first two groups (the pseudoperitoneums and varicosities) intestinal resection is not justified.

The clinical differentiation of the three types of disease indicated in this paper is not always easy. Subperitoneal exudation may raise up the peritoneum, causing a simple varicosity to simulate a pseudoperitoneum in a very confusing manner, but the topographic relation is distinctive. Mesenteric sclerosis may be complicated by vascular congestion simulating varicosity, or varicosity may be attended by a productive process which extends to the mesentery proper, and vascular dilatation and pseudoperitoneal formations are often combined with primary mesenteric sclerosis in a very confusing manner. The surgeon's knowledge of topographic anatomy and his ability to judge of the acuteness of a vascular dilatation and its relation to an active or slumbering lesion must be his guide in dealing with such problems.

Argyle Building.

5. Virchow: Virchow's Arch. f. path. Anat., 1861, v, 335.

Progress in Clinical Pathology.—The time is past when the physician is satisfied merely to examine the urine of his patients for albumin and sugar, for it is being appreciated that the more thorough analysis of this excretion will often give important information in other directions. In order to detect orthostatic albuminuria, or mild cases of diabetes mellitus, it is necessary to examine both evening and morning specimens. A case of neuralgia, on diabetic basis, proved amenable enough to treatment when after several months the etiology was recognized by an examination of the evening instead of the morning sample. The detection of indican, skatol, acetone, bile, and urobilin will often materially aid in establishing a diagnosis. The quantitative estimation of chlorids is a very simple procedure, and should be done more frequently, especially in view of the relation of salt to the pathologic retention of fluid.—O. Hensel, in *Merck's Archives.*

THE EARLY SYMPTOMS OF UPPER ABDOMINAL DISEASE *

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PHILADELPHIA

We should be loath to admit that there is any class of diseases in which a diagnosis is rarely made until the nature of the malady is manifested by the occurrence of a complication; yet it is hardly an exaggeration to say that, until very lately at least, this has been the case in the diseases of the upper abdomen. Particularly is this true of the pathologic conditions within the surgical field, the very ones which are most grave, and in which delay in resort to proper treatment is attended by the most serious consequences.

The reasons for this state of affairs are easily found. The surgery of the upper abdominal organs has lagged far behind that of the pelvic organs or the appendix, partly because of the very diagnostic difficulties, which are, in turn, caused largely by the absence of precise surgical data, and partly because of the inherent difficulties in the technic of the operations required. The pathology of the viscera concerned has been based on postmortem studies in which are found, not mild or incipient processes, but the results of long-continued destruction and change of tissues; often, indeed, the disease which is itself under investigation has been allowed to go untreated to a fatal termination. Moreover, the physiology of the stomach, duodenum, biliary system and pancreas, with which we are concerned in this region, as well as that of other portions of the digestive tract, has been made clear only in comparatively recent times. We are just beginning to realize that in the digestive tract we have not a number of separate and incoordinate units, but that they are all in most intimate connection and that disease in one portion may manifest itself primarily by symptoms referred to an entirely different part. There are also some symptoms common to disease in almost any portion of the digestive tract—symptoms which, because of their very universality, have in times past generally been considered as neuroses due in some occult way to anything or to nothing in particular.

The intimate anatomic relationships of the organs of the upper abdomen, the stomach, duodenum, pancreas and biliary apparatus, are well known; and there is also an equally intimate physiologic coordination. In view of these facts, it is easy to understand why the symptomatology of their diseases should in many ways be similar and confusing, and why so many diseases of this region should fail of recognition in their early stages. Yet I can safely assert that this diagnostic uncertainty is gradually giving place to a comparatively clear differentiation of the various diseases of this region, and that we are now able by careful study of the history and physical signs to recognize many of the pathologic processes in their incipiency.

Before considering these more in detail, I want to emphasize the importance of a careful history in all of these cases. It has far more weight than anything we can elicit in the way of physical signs, and always merits our closest attention. Apparently minor points often are of the greatest value in diagnosis, though we may fail to recognize their importance until they are placed in proper relation to the other data at hand. In too many instances the medical attendant approaches the case with a preconceived idea of the diagnosis, based on a hasty summing up of the most striking symptoms. The patient's own description of his case is then distorted unconsciously perhaps to conform to a diagnosis already considered as definite. Moreover, there is often a disposition on the part of the physician to pay attention to the supposed cardinal signs and as a result the patient forgets or neglects to mention the very facts, apparently trivial, which are of most moment. Careful, definite questioning is of prime importance in eliciting a history of illness, but it should not be so directed that the patient is led to give his answers in accordance to the ones which are apparently wanted. A leading question is often a good one, but it can be made a misleading one by too much insistence on it.

I have found it to be of just as much value to follow a routine method of history-taking as to follow a regular method of physical examination.

In a consideration in detail of a few of the conditions with which we have to deal, gallstones furnish us with one of the classical examples of delayed diagnosis. Their occurrence has been noted for centuries, and the description of their symptomatology has remained unchanged for the last seventy-five years, until within the last few years. As given in most standard text-books of medicine or surgery of even recent date we find that they are those, not of the presence of gallstones, but either of impaction of the stones or of the accompanying acute inflammation of the gall bladder or ducts. When the pathologic revival took place some fifty years ago, enthusiastic investigators found biliary calculi in numberless instances in which the so-called "classical signs" were absent during life. The statement was at once made that gallstones produce no symptoms in 90 per cent. of cases. So eminent and careful an investigator as Naunyn, whose pathologic investigations on this subject are still of standard value, believed that most people with gallstones never had symptoms, and his belief has been accepted and reiterated without question ever since he set forth his ideas, some twenty years ago. Yet it is certain that practically every person who has gallstones suffers from them more or less continuously, if not always acutely. In the course of some statistical investigations on this subject which I made about two years ago, on a series of over 200 of my own cases, it was found that jaundice had been present in but 75 per cent., an even higher percentage than that found in the experience of Kehr, Mayo Robson, Moynihan or Mayo. My most recent statistics show about the same percentage. Indeed, Moynihan, in his recent volume on gallstones, has said that he considered jaundice as a symptom of little value, and Mr. Waterhouse[1] has stated that it is absent in 85 per cent. of his cases. Yet our text-book description would lead us to believe that a diagnosis of gallstones without a history of jaundice is impossible. Similarly, the sharp and excruciating pain in the right epigastrium referred to the back or right shoulder is a standard symptom of gallstones; yet in how many instances do we find but a mild or subacute pain or only a dull ache in the right upper abdomen.

But even before these symptoms come on, are there no signs by which the gallstones make their presence known? Most assuredly. In practically every case in which I have operated for gallstones the patient has given a history of long-standing "dyspepsia," a capricious appetite, constipation, marked flatulence, largely

* Read in the Section on Surgery of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909

1. Waterhouse: Lancet, London, 1909.

independent of the taking of food, together with discomfort on an empty stomach and comparative comfort at night only after eating a little.

It will at once be noted that all these symptoms would be referred by the patient to the stomach, or perhaps to some hepatic disorder. The periods of discomfort are usually described as "bilious attacks" or "only slight attacks of indigestion." The only symptom during a long period of time may be a sense of tightness or constriction in the epigastric region. This is a rather characteristic feature of gallstone cases, as distinguished from other lesions of the upper abdomen. There is flatulence, with its attendant discomfort, which is often relieved by the eructation of gas, but the sense of tightness is more or less peculiar to gallstone disease. Relief from it is often obtained by pressure in the epigastrium or in other cases by the loosening of the clothes about the waist.

On cursory examination such a case would be classed as one of "dyspepsia." But it is to be noted that the "dyspeptic" symptoms become more and more annoying. As the case progresses the feeling of constriction becomes at times one of more or less actual pain, and after such an exacerbation there may be noted a soreness in the right side. It may never progress further than this. On the other hand, it may go on, if we allow it to do so by failure to institute proper treatment, until we have acute attacks of pain in the right upper abdomen and finally an unmistakable biliary colic.

We should not be deceived because these symptoms occur in a patient below middle age. Recent careful studies of over 400 of my cases have convinced me that gallstone disease begins in most cases before the fortieth year and often much earlier.

At times there occurs in association with this pain or discomfort a sensation of chilliness or cold, and this is quite characteristic of gallstones. Nausea or vomiting may occur with, or after the onset of pain, and the vomiting may relieve it. But since we have some nausea with almost every severe upper abdominal lesion its value is correspondingly lessened.

Krause, in 1884, described these so-called prodromal symptoms of gallstones and attributed them to the active formation of the calculi. His work was lost sight of. We know, however, that the symptoms are due not to the formation of gallstones, but to the presence of those already formed in a comparatively quiescent state.

In my own experience the *x*-ray has not been a very valuable adjunct in the diagnosis of biliary calculi. Some surgeons, however, among whom may be mentioned Beck and Waterhouse, have had good results in this direction. Doubtless refinements in technic will give the *x*-ray an ever-increasing value in the diagnosis of abdominal lesions. I have not infrequently seen hyperchlorhydria.

It seems to me that there is ample basis for the use of the term "gallstone dyspepsia," as has been suggested by Mr. Moynihan. We should diagnose "gallstone dyspepsia" much oftener than we do, and be ready to advise prompt surgical relief in order to save the patients years of annoyance and discomfort. As one of the authors mentioned has put it, his "firm belief is that the majority of flatulent dyspeptic women who attend the out-patient room with such wondrous regularity to receive their weekly bottle of medicines are really suffering from gallstones." I believe that there is much truth in this statement, and also that we will find in a practice among the wealthier classes a still greater proportion of those in whom so-called "latent" gallstones are trying in a hundred ways to make their presence known.

The gallstone patient is not the only one on whom the diagnosis of a gastric or intestinal dyspepsia or neurosis is too often wrongly made. Subacute and chronic gastric and duodenal ulcers are just as often allowed to go unrecognized for years. Why, in either of these cases, should we wait for frank hemorrhage or marked tenderness on pressure, or even perforation, to make our diagnosis? No case of gastric ulcer need remain unrecognized until a copious hemorrhage makes it all too plain. In a person below middle age, persistent and grave dyspepsia should always lead us to think not of a functional disease, but of one dependent on well-marked pathologic changes. The condition is frequently due to a latent or chronic gastric ulceration, single or multiple. Such patients almost invariably complain of more or less pain in the pit of the stomach, often aggravated immediately after the ingestion of food, but at times relieved by it. Vomiting is rare unless the process involves the pyloric portion of the stomach and causes a partial stenosis. At times a trace of blood may be found in the stools, by the test for occult blood, when it can be demonstrated in no other way. The stomach contents in a case of gastric ulcer are often hyperacid, but I do not place much confidence in the gastric analysis. There are so many factors which in any individual may cause a wide variation of all the constituents, and our methods of examination are as yet so faulty, that the information which we derive from a gastric analysis is misleading just as often as it is of value to us. The question of the motility of the stomach is more important than is the secretory function.

Anorexia is common in occult gastric ulcer, or its place may be taken by a marked capriciousness of appetite. In all of these patients, however, we note a continued emaciation, an apparent inability to absorb food even when it is ingested. The pain and anorexia are both entirely unrelieved by the ordinary remedial measures. The patients, because of their continual suffering or discomfort, become unable to work or even to enjoy their leisure. The long-continued use of stomachics and tonics depletes rather than restores their vitality and health. Yet in most instances the diagnosis is not made or even suspected. The history is carelessly taken, the case classified as dyspepsia, and treated for an indefinite length of time, until perforation or violent hematemesis shows the true state of affairs. Even vomiting after meals, long continued and often repeated, is generally ascribed to some nervous condition, is called nervous vomiting, and is treated accordingly—that is, not at all.

Duodenal ulcer gives us symptoms in many ways similar to those of gastric ulcer, yet liable also to be confused with those of gallstones. There are certain distinctive features which should in the majority of instances enable us to make a positive diagnosis of the condition comparatively easy. In a general way ulcer of the duodenum presents symptoms analogous to those of similar lesions within the stomach. We have, in typical examples, pain after the ingestion of food, dyspepsia, and occasionally traces of occult blood can be demonstrated in the feces. The pain as a rule shows itself in two different forms; the first is that which comes on after eating, but at a somewhat longer and more variable interval after the food reaches the stomach. This is the pain which we find described in the so-called "classical" text-book descrip-

tion of the condition. The second variety is the so-called "hunger pain," described so well by Mr. Mayo Robson. We find that the patient suffering from duodenal ulcer is more comfortable when the stomach has some food in it, and that they rest better at night if something is taken immediately before retiring. This pain may not be described as such, and the patient may not be aware of the real cause of the desire to keep something in the stomach. In duodenal ulcer it has been noted that the pain, of whatever variety it may be, is rarely referred. Vomiting, and especially the vomiting of blood, is rare, painless at a late stage of the disease. Rigidity and tenderness I have already mentioned as early symptoms of duodenal ulcer.

I have lately operated in a case of duodenal ulcer, referred to me by Dr. J. B. Mencke. The patient had been treated by various physicians for five years. Not one had elicited a careful history until just before he was referred to me. His complaint was that about one-half or three-quarters of an hour after meals he had severe pain in the right epigastrium associated with flatulence and distention. He had never vomited except when he forced himself to do so, and then experienced relief. For days or weeks he would feel perfectly well and then after some indiscretion in diet he would have another attack. He had never been jaundiced or had blood in his stools.

In this man the general food nourishment, absence of vomiting and melena, and the periods of comparative well-being, had directed the attention of his medical attendants away from the true seat of disease. Yet a detailed history and his reiteration of the statements about the agonizing and unbearable pain should at once have convinced them that no simple catarrhal gastritis or an enteritis of a chronic variety could be the underlying cause. The physical examination and stomach analysis in this case showed us nothing, and only on the history of the case was the diagnosis made, and confirmed at operation.

Duodenal ulcer is, of all the conditions so far mentioned, the most occult in its signs. We must, however, revise our previous opinions as to its frequency. Recent clinical investigations at the operating table by Mayo and others have shown that it is found almost, if not quite, as often as gastric ulcer. In my own experience it has not been quite as frequent as with some other surgeons. It is easy to see how a duodenal ulcer of the chronic variety in the presence of a not very irritating gastric juice may give very vague symptoms for a long period of time. The absence of vomiting and hematemesis or of tangible facts in the physical examination makes the diagnosis most difficult. I lay especial emphasis in my wards on the careful examination of the feces for occult blood, and have many times found a clue in this way in cases in which the diagnosis was very doubtful.

The differential diagnosis between gastric and duodenal ulcer and gallstones is often impossible. Yet there are some instances in which the symptoms will give us at least certain points which will enable us to become fairly positive in our determination of the condition under consideration.

The initial symptoms of all of the surgical diseases of the organs of the upper abdomen are in many ways very much alike. Thus, for instance, we have dyspepsia in early disease of the stomach, duodenum and gall bladder. It varies somewhat, however, in type when accompanying the different lesions.

Early in gallstone disease, discomfort in the upper abdomen is noticed. It is hardly a real pain and is accompanied by eructation of gas, which often brings relief. The patient has a good appetite, but is afraid to eat. A patient with a gastric ulcer, on the other hand, always shows more or less anorexia, even if it be only at certain longer or shorter periods of time. Patients with duodenal ulcer vary greatly in this respect, some simulating gastric ulcer, others behaving more like gallstone cases.

Vomiting is far more frequently seen in patients with gastric and duodenal disease than in those who have gallstones. In gallstone patients there is often the feeling that vomiting would relieve the discomfort, yet it rarely comes on until late in the disease, and then in association with a more or less unmistakable biliary colic. In duodenal ulcer, vomiting is at times also entirely absent, as is illustrated in the case before noted.

The pain in the three conditions mentioned varies somewhat, although most careful questioning of the patient is needed in order to enable us to differentiate the varieties.

In gallstone disease it is often, at least in the beginning of the disease, more like a sense of constriction than an actual pain and often accompanied by a sensation of chilliness, which is characteristic. Moreover, it seems to involve the whole right side in a sensation of stiffness and soreness, but without marked tenderness, except in the presence of an acute cholecystitis. In gastric and duodenal ulcer marked early tenderness accompanies a pain sharply localized, as a rule, and directly dependent either on the ingestion of food or the entire emptying of the stomach. In gallstone disease there is often a certain amount of tenderness noted on deep pressure beneath the right costal margin.

Jaundice, hematemesis, etc., all of them late symptoms, will clarify the diagnosis, but are of little value early. Laboratory methods do not help us at all in the early diagnosis of upper abdominal disease; in fact, they rather tend to confuse than to aid us. It can easily be seen how difficult it is to make a diagnosis of early disease of the stomach, duodenum or gall bladder. Our constant endeavor should be to discover, if possible, new clinical data and aids to examination.

Yet whether we have gallstones, rebellious duodenal or gastric ulcers, or perigastric or pericholecystic adhesions, there is but one treatment—operation—and, while the close proximity of the organs leads to difficulty in diagnosis, it renders it possible for us to inspect them all at the time of operation. This statement should not be taken as an argument in favor of what I have elsewhere spoken of as the "therapeutic test" of an exploratory operation. The mere fact that all these lesions may be treated through one and the same incision is no justification for the surgeon's shirking his duty of making a correct diagnosis as often as possible.

A confusing factor in making a diagnosis is to be found in the presence of adhesions. Adhesions of the upper abdomen generally caused by an inflammatory process of low grade may involve any or all of the organs of this region, i. e., the biliary tract, stomach and colon, etc. Likewise they may cause symptoms simulating those of diseases of any of these organs.

I have seen pericholecystic adhesions give the whole syndrome of gallstones—colic, jaundice, etc.—and I remember particularly in this connection the case of one of my former internes, on whom I subsequently operated. I have frequently noticed that when adhe-

sions have been present in gallstone cases the history of digestive disturbances has been perhaps somewhat more pronounced than in those instances in which they were not found. It is especially when we have adhesions about the gall bladder and ducts, which by constriction cause obstruction to the flow of bile and jaundice, that we are more uncertain whether we have a diseased condition within the gall bladder or totally outside of it. I am convinced, however, that such adhesions call just as strongly for surgical intervention, indeed even more so, for there is not even that slight chance of spontaneous recovery which we have with cholelithiasis.

It is not difficult to understand how adhesions involving the stomach, duodenum, or colon, especially if they be many and dense, can give ample grounds for diagnosing a serious organic condition of these organs themselves. They are, however, rather less often found, and hence of less importance, than those which we find about the gall bladder.

In the absence of any definite history of a previous inflammatory involvement of the peritoneum or operative procedure, I know of no way in which we can diagnose these adhesions.

It would leave the subject entirely incomplete were I to neglect to mention the part that the appendix may play in causing symptoms entirely referable to the upper abdomen. I have seen many such instances, and within the past year have operated in a number of cases of pylorospasm in which an appendicectomy removed all the symptoms.

But while in gallstones and ulcer the consequences of failure in diagnosis may be most serious, they are not so grave as in carcinoma of the stomach.

Cancer of the stomach was for years looked on as the utmost example of medical failure. A diagnosis was synonymous with a fatal prognosis, and never yet has a patient been cured, or become cured under medical treatment. But with the advances of surgery we have found that it may in some instances be cured, if it is operated on sufficiently early. Here is the main part of the treatment—the early diagnosis. Yet what were the symptoms of gastric carcinoma as we were taught, and as they are still taught to-day? Vomiting of retained food putrefaction of food, tumor, hemorrhage, the presence of the Oppler-Boas bacillus in the vomitus, and cachexia. These are not the signs of the presence of a cancer of the stomach, but of a marked stenosis of the pylorus as a result of such cancer. Crile says: "These are terminal symptoms, and indicate that the surgical opportunity is forever lost." In applying this statement to cancer of the stomach, we could well mention tumor and retention vomiting as the signs of lost opportunity.

It is but frank to say that in our present state of knowledge a certain diagnosis of gastric carcinoma in its incipiency is an impossibility. Yet we need not wait for terminal symptoms. It is far better to operate on an uncertain diagnosis than to allow the patient to pass the boundaries of our power to help him.

In most patients who develop cancer of the stomach we have either a history of well-developed gastric ulcer of the chronic type or, as is more often the case, of a chronic gastric catarrh. When in the presence of this condition a person of middle age develops more marked symptoms thereof and begins to complain of loss of weight and strength and perhaps some dull epigastric pain, we have the danger signal before us. Just as serious, or even more so, are these signs when they develop in an individual previously in good health and with good digestive powers.

We are gradually also beginning to appreciate the fact that carcinoma of the stomach is found far more frequently in people below middle age than we had previously supposed. Too great stress, then, should not be placed on a patient's comparative youth, if his symptoms are such as to cause us to suspect carcinoma of the stomach.

Naturally we can make no diagnosis at once—the symptoms will merely arouse suspicion. But suspicion will soon be turned to almost a certainty, if, in spite of careful treatment for six or eight weeks, the patient continues to get worse. The pain increases slightly, the loss in weight becomes more out of proportion to the dyspepsia, appetite vanishes, and, in addition to loss of flesh, we begin to note some anemia. Diagnosis of probable malignancy can now be made, and it is our duty to confirm and treat it surgically at once, without temporizing or drugging. At this stage of the disease the patient can stand a grave operation, the growth is localized and often removable, and our chances of permanent cure have not yet been lost. Two years ago I had occasion to operate in such a case and found a cancerous growth of the mucosa of the pylorus which had not yet involved the outer coats of the stomach and was not over three-quarters of an inch in breadth. A pylorectomy was easily done, and at last reports the patient was feeling as well as ever. A month's delay in this instance might have given some glandular metastasis, made necessary a partial or subtotal gastrectomy, instead of a simple pylorectomy, and thus lessened the patient's chances for final recovery at least 50 per cent.

The diagnosis of pancreatic conditions, except acute pancreatitis, is still a matter of great uncertainty; even the acute conditions of the organ are not easy to differentiate clinically at their onset.

To diagnose a subacute or chronic pancreatitis at any stage of the disease is a matter of difficulty. Perhaps the main reason for the rarity of correct diagnoses of chronic pancreatic disease is the failure to consider the pancreas as a source of long-continued digestive disturbances. Recent studies and monographs have brought greater attention to the subject, and of late Mayo Robson has advocated surgical treatment for the cure of the condition. I can recall several cases in which the patient gave a history of long-continued dyspepsia, that is to say, periods of dyspepsia with long intervals of apparently entire health. Associated with this have been epigastric distress, occasional attacks of pain in the epigastrium, especially to the left, inability to digest certain classes of food, and alternating diarrhea and constipation. Examination of the feces has at times shown an excess of undigested tissue fibers and fat. In a number of these cases operation was undertaken with a view to relieving the chronic pancreatitis by drainage of the biliary passages, and I have become convinced that this is the proper treatment in such cases. Of late years the Cammidge reaction has been employed in the diagnosis of pancreatic lesions, and, while the results are often open to question, I consider it of some value.

There are two most excellent reasons why a beginning sclerosing pancreatitis should be recognized and promptly dealt with. One is the increased possibility of the occurrence of carcinomatous growth in a pancreas the subject of advanced disease. The other, and still more important reason, is the frequent occurrence of an incurable and fatal diabetes as a result of chronic

pancreatitis. When the disease has once reached this stage, any form of treatment is likely to be useless. I do not believe that chronic pancreatic lesions, even independent of gallstones, are nearly as rare as is supposed. Their frequent association with gallstone disease is, of course, well known. Their apparent rarity is largely due to the difficulties of diagnosis.

The conditions so far considered as offering a field for early diagnosis have been only the subacute and chronic lesions of the upper abdominal organs. There are two acute conditions in which an early diagnosis is still at times difficult, acute pancreatitis and perforative peritonitis.

Acute pancreatitis can often be diagnosed soon after the onset of the initial symptoms if we closely observe their sequence and occurrence. It almost always manifests its onset by sudden, sharp, epigastric pain, followed by vomiting, often accompanied by cyanosis. The pulse remains slow until we have considerable omental bursitis with absorption. The most prominent feature in the subsequent course of the disease—that is, within the next three or four days—is the apparent intestinal obstruction; and most marked of all the symptoms in this connection is the persistent belching so frequently noted in these cases, and due to the diaphragmatic irritation. Indeed, most cases of acute pancreatitis have been diagnosed as acute intestinal obstruction. In pancreatitis, however, it is possible in the course of a few days to procure good peristalsis, and thus to eliminate obstruction. We note very early in pancreatitis epigastric rigidity and excruciating pain.

The Cammidge reaction is of no value in the diagnosis of acute pancreatitis. More attention to the details of the symptomatology will no doubt enable us to distinguish most cases of acute pancreatitis from acute ileus, with which it is most often confused.

It may seem strange that perforative peritonitis of the upper abdomen has been included among the diseases often diagnosed too late, yet there is justification for so placing it. Mr. Moynihan has well pointed out, in a recent article, the fact that the symptoms for which we look at once, shock, rapid pulse, exquisite tenderness, etc., do not come on immediately after the perforation takes place, but only after a number of hours have passed. It has been my experience that the most valuable signs of perforation are the extreme, agonizing pain and rigidity of the abdominal muscles, including the diaphragm. The short, catchy respiration is characteristic and is due to the spasmodic fixation of the diaphragm. The pulse I have often found slow and of good volume, until we have the evidences of toxemia of peritoneal origin implanted on those of perforation itself. The tendency to look on the shock of a typical variety as a necessary symptom-complex to the diagnosis of such conditions as early perforative peritonitis and intestinal obstruction is too prevalent. I have often called attention to the fact that it is absent early in obstruction, and, as I see my cases of perforative peritonitis earlier, I find that the same holds true of them also.

It is, of course, unnecessary to dwell on the importance of early diagnosis and operation in cases of perforative peritonitis. Early we may and should be able to save the patients; late the cases are almost always hopeless.

It will be seen, then, that in all the subacute and chronic lesions of the upper abdomen an early diagnosis offers the only hope of successfully coping with the disease, whatever it may be. We should no more wait for a gastric or duodenal ulcer to perforate than we would wait for an inflamed appendix to do so. The physician who waits for common-duct impaction to diagnose gallstones is just as much to be censured as one who diagnoses acute appendicitis by the formation of an abscess.

With a carefully taken history, painstaking physical and clinical examination, the proper solution will be found in almost every case, and, a correct diagnosis once being made, surgical treatment in early cases is safe and sure of good result.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. HERTZLER AND DEAVER

DR. W. D. HAGGARD, Nashville, Tenn.: It is true that we are not nearly so keen in the early diagnosis of conditions in the right upper quadrant as we are of conditions in the lower abdomen and in the pelvis. You will recall how slow we were in the early recognition of appendicitis, ectopic gestation, ileus and other conditions in the pelvis, and how much we have learned, but how very ignorant we are when it comes to the diagnosis of conditions in the upper abdomen. I think that this is due to a lack of appreciation of the frequency of these maladies. If we will look on every patient who presents himself with indigestion as having some serious lesion of the stomach and gall-bladder, with or without complication, until the seriousness is disproved, we will have taken the first step in making a correct diagnosis. I agree that history taking is most important, and how common it is to look on these patients as having some neurosis of the stomach or gastritis, and never for a minute think of the possibility of the existence of gall-stones or chronic gastric ulcer. It is so easy to make a mistake in diagnosis when we insist on receiving answers from the patient that confirm our preconceived opinions, as when we look for evidence of specific disease. Therefore, it is better to believe that every patient is the victim of some serious lesion when he complains of dyspepsia, until the contrary can be proved. In gall-bladder disease the initial symptoms are not acute colic always, but rather flatulence in women "fair, fat and forty," and when such patients have discomfort, tenderness on pressure under the costal arch or in the area of Boas, feel generally unwell, and complaining of indigestion, we must not jump to the conclusion that they are neurotics. Neither are they all sufferers from gastritis; they probably have gall-stones.

In reference to the stomach and duodenum, while we do not always have a definite symptomatology, as in gall-bladder disease, at the same time there is, in many instances, a train of symptoms that should lead to careful consideration of the case. Take a case of duodenal ulcer in which the patient complains of a typical hunger pain before meals, and sometimes coming on at night, when he has to take a bite of something to relieve him. Whether that is relieved by the closure of the pylorus, stopping the flow of gastric juice over the ulcer, does not matter. It means duodenal ulcer, in the majority of cases. Recently I saw a boy of 17 who complained of stomach symptoms for several years, and who suddenly had a pain in the right upper quadrant of his abdomen, after four weeks of tenderness, elevated temperature, chills and sweats, with bulging of the right lower thorax, leucocytosis and the tympanitic area between the normal liver dulness and the pulmonary resonance enabled us to diagnose subphrenic ulcer. It resulted from a perforated duodenal ulcer. I feel that if we will pay more attention to the early history of these patients and get it accurately and honestly, we will make an effective step in the advancement of our diagnostic ability in the case of diseases in the upper abdomen.

DR. ROBERT J. MORRIS, New York: We are not going to make any progress in this matter of the early diagnosis of upper abdominal disease until we have stopped considering dyspepsia as a diagnostic entity. A patient consults us complaining of dyspepsia and states that he has been treated for

hyperacidity, for insufficiency of the pylorus or spasm of the pylorus. We must consider that these are merely symptoms and our examination has just begun with the diagnosis of dyspepsia. We are simply on the way toward a diagnosis. Recently I operated on a perforation of the duodenum, and the physician said that that was his second case within a month in persons who had been for two or more years under the care of a gastroenterologist for dyspepsia. It is not an easy matter to make a diagnosis, even when we go at the case very systematically. I have under my care at present a patient sent to me for ulcer of the duodenum. I had gone to work on the diagnosis by ruling out one thing after another, and after her eleven days of absolute constipation and a previous history of disturbance at times, I came to the conclusion that this was only a case of eyestrain. I have during the year every month some cases of dyspepsia due to eyestrain sent in for operation for gall-stones, duodenal ulcer, cancer of the pylorus, and my position is always this: So long as eyestrain does cause such symptoms in a certain proportion of cases, let us find the cases. That is a reasonable ground to take. Few of our ophthalmologists are competent to make this diagnosis. In the case referred to the patient's eyes have been examined by a most competent ophthalmologist. I asked him a few days ago whether he worked this case out with reference to imbalance of the eye muscles, and he told me he had not. We must not forget that similar symptoms are caused in a certain proportion of cases by gall-stones. Cases of gall-stones are often found at the deadhouse, in which it is said that the patient had no trouble from the presence of such stone—who knows? Such patients may have suffered for months or years or even a lifetime and with no diagnosis made, even though they told the physicians that they had gall-stones, and he said that it was not so.

DR. ARCHIBALD MACLAREN, St. Paul, Minn.: The pseudoperitonitis which Dr. Hertzler so well described seems to me to need immense consideration. The peritoneum does form a false membrane over each abscess, but Nature, it seems to me, is well able to take care of that pseudoperitoneum, as is well seen in so many operations for pelvic inflammatory disease. I remember years ago in the early history of abdominal surgery, where in a certain case the wall of a large pelvic abscess had been stitched to the peritoneal incision. Six months later I had to open that abdomen for some other cause and found nothing but a single thin fiddle string left. The dissection and stitching up of these flaps may occasionally be a good thing, but usually it is rather meddlesome surgery. Dr. J. N. Jackson recently described a false membrane which forms on top of the cecum and which, in his judgment, is to be dissected off. I have frequently seen the same result produced by simply dividing that membrane and loosening up the colon.

Dr. Deaver is unquestionably correct in regard to the difficulties of diagnosis in abdominal troubles. The wonder to me is that any court of law ever goes right; because these people come to us and try to tell their story, and there is no reason why they should not do so. And still, after half an hour's time spent in cross-examination, they will often say: "Why, I did have an attack of inflammation of the bowels two or three years ago." You can manufacture testimony for these people without any trouble, and the great difficulty is to avoid doing this very thing. In regard to gallstones, which have given no symptoms. When the patient is recovering from the operation where slumbering gallstones have been discovered and removed one can go back and always get a history, without any question, of gallstone dyspepsia so well described by Dr. Deaver.

DR. A. E. HERTZLER, Kansas City, Mo.: Dr. MacLaren's statement with regard to the "string" is correct; we all know that such strings produce intestinal obstruction. I want particularly to call attention to the reason why some adhesions are temporary and some permanent. As I stated in the beginning, there is the ordinary phenomenon of blood coagulation; when that process goes on undisturbed permanent adhesions result. In cases in which there are processes that ordinarily go on to precipitation the fibrin is not absorbed. In the last type referred to by Dr. MacLaren, the treatment is simply that of any varicocele—the ligation of the veins. Such ligation will relieve the congestion, just as ligation of the veins does in obstructive phenomena in other places.

DR. J. B. DEAVER, Philadelphia: It seems to me now to be a question of the education of the public, just as in the matter of appendicitis. If we will educate the public they will say as they do now in appendicitis: "Doctor, I want my appendix taken out. Doctor, I want my abdomen opened if you think there is a chronic ulcer." We must do with the gastroenterologists as we did with the gynecologists, set them aside. We must do with the gentlemen who are washing out stomachs and electrocuting them, acting on the minds of the patients as we did with the gynecologists, and it leaves, therefore, only the internist and the surgeon to handle these patients.

Another class of men who have only a very limited sphere are the roentgenologists. If we wait until a lesion is demonstrable by the Roentgen ray, it is too late for surgery to accomplish anything. We must recognize the early symptoms and not be afraid of advising abdominal exploration. I have heard men who held high positions say that it is a terrible responsibility. We must get that out of our heads. We must operate on our patients early if we wish for results.

RESULTS OF THREE YEARS' EXPERIENCE IN BACTERIAL IMMUNIZATION *

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PHILADELPHIA

Two years ago in a contribution[1] read before the Philadelphia County Medical Society on the subject of opsonins, I made the following statements: 1. "In the heralded unlimited field of therapy, where the opsonic index is ordained to play a star rôle, its utility seems destined to pass into oblivion, not only because of its inconstancy in agreement with the clinical symptomatology, but especially because of its impracticability." 2. "Although my experience thus far with artificial autoinoculations has been most gratifying and my results in close harmony with those of other observers, I am disposed to believe that there is a tendency to overvaluation even in this method of therapy." To-day I am more than ever convinced of the correctness of that stand and I doubt very much if at present Wright himself believes, literally, his statement promulgated a few years since, that "by means of these bacterial vaccines we have, in the power of raising the antibacterial power of the blood, with respect to any invading microbe, out of all comparison, the most valuable asset in medicine."

It is ever a fact in medicine that when truly important discoveries are announced the pendulum of applicability and utility, at first, either swings too far or not far enough. Valuable, indeed, as bacterin therapy has proved itself to be in an extensive category of affections to which the human organism is subject, it was and still is, in a measure, the victim of the former evil. Time and experience have gradually shaped the destiny of opsonotherapy or bacterial immunization, and the practitioner conversant with the current medical literature

* Read in the Section on Pharmacology and Therapeutics of the American Medical Association, at the Sixtieth Annual Session, held at Atlantic City, June, 1909.

* From the William Pepper Laboratory of Clinical Medicine of the University of Pennsylvania.

1. Variability and Unreliability in the Determination of the Opsonic Index, THE JOURNAL A. M. A., Oct. 12, 1907, xlix, 1249.

has already formed a more or less correct judgment on the merits of biologic therapeutics.

That inoculation by bacterin, in properly selected cases, plays an extremely important rôle in convalescence is indisputable. That failure to obtain expected results is due often to ignorance or a misapplication of this particular kind of treatment in contraindicated cases, thereby unjustly placing active immunization in disrepute with many clinicians, is unquestionable. I dare say that were a ballot taken of average physicians as to whether or not active immunization should be employed in a given case of septicemia, a positive vote would be cast. From my experiences nothing could be more erroneous. The defenses of the organism have already been exhausted and broken down, which accounts for the occurrence of the bacteriemia. How illogical, therefore, the introduction of an antigen, in the hope of stimulating these body cells to the production of antibodies, when their supply has already been consumed! We must not expect the impossible from bacterin therapy. The condition can be likened to the overzealous, but indiscreet jockey, who vainly hopes to win in the close finish race by relentlessly flogging his exhausted thoroughbred. Scientifically considered from the standpoint of anaphylaxis, it is not improbable, in cases of bacteriemia, that the inoculation of bacterin may not only do no good, but actually result harmfully. The organism is already in a state of hypersusceptibility induced by an overwhelming autogenous antigen, when, if the theory of Vaughan be correct, albumin in the body is broken up into the toxic and non-toxic group. At the time of the heterogenous injection of dead bacteria, the body attacks the albumin so vigorously and releases so much of the toxic group that it is overcome by the poisonous radical. On the other hand, late in the course of the disease, if the patient survives, it must be recalled that the inoculation of dead bacteria may act beneficially. Such has been the experience of Rosenow[2] in chronic septic endocarditis. I have had no success in this class of cases, and when improvement or cure has ensued I have been inclined to attribute it to Providence rather than to bacterin therapy.

Finally, overdependence on the opsonic index as a guide, and carelessness or inattention to certain clinical signs and symptoms, be they ever so slight and seemingly trivial in nature, or an irrepressible enthusiasm to *"push the treatment"* as soon as improvement becomes manifest, invariably leads to disappointment, if not to utter failure and disaster. This is particularly true of tuberculous affections, in which a prolonged, tedious and cautious course of treatment of six to twelve months' duration must be instituted.

The unanimous interest in and practical importance of active immunization make it the imperative duty of every practitioner, individually and collectively, to determine as early as possible precisely in what class of affections bacterin therapy shall and shall not be utilized. The problem is shrouded in many difficulties owing to the variability in the application of the treatment, so that results necessarily differ. For instance, some observers rely implicitly on the opsonic index as the guide in dosage; others maintain that the clinical symptomatology is all-sufficient; some pin their faith to autogenous bacterins; others claim that the stock preparations are equally or more meritorious; some advocate inoculations, comparatively, of large size; others, minimum dosage; some draw their conclusions following biologic therapy alone; others refuse to discard old measures of proved worth and insist on associating bacterin therapy only with the former; some are gifted with excellent judgment and possess keen powers of observation, while others are indifferent, careless and overenthusiastic or prejudiced. These disadvantages can be overcome only by a persistent effort on the part of the profession to continue the search for the truth by the multiplication of case reports.

2. Rosenow: Jour. Infect. Dis., April, 1909.

It is very easy in noting results following an attempt at immunization to become either an optimist or a pessimist, depending on whether one is an advocate or a doubter of the method. In this report it has been my avowed purpose to communicate the results of all cases, good, bad and indifferent, of all cases treated, in the belief that only by such statements can we ever hope to solve this question in its entirety. Certainly, the report of sporadic cases, with only brilliant results, from time to time, may lead to erroneous conclusions.

It has been my fortune to employ bacterin therapy in 106 various affections, among which the following bacteria were isolated for the preparation of autogenous bacterins. In a few instances, notably in gonorrheal and tuberculous affections, a stock bacterin was employed.

Bacteria.	Infections.
1. *Micrococcus albus*	18
2. *Micrococcus aureus*	38
3. *Bacillus coli communis*	6
4. *Bacterium ferrugineum*	1
5. *Bacillus fluorescens*	2
6. *Micrococcus gonorrhœæ*	19
7. *Bacillus proteus vulgaris*	2
8. *Bacterium punctatum*	1
9. *Bacillus pyocyaneus*	3
10. *Streptococcus pyogenes*	10
11. *Bacillus tuberculosis*	19
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In all, fifty distinct diseases were treated. Both by desire and virtue of circumstances, the time-honored measures of proved worth were never abolished from treatment during the periods of bacterial inoculations, because I have always considered bacterin therapy as an accessory, not as a specific agent. It was never intended to be, nor will it ever be, a "cure-all," but should be regarded as an aid to assist Nature in properly selected cases, to combat infection by fortifying the organism through the production of immunization by antibodies. Moreover, it is the acknowledged duty of the physician to employ all the useful measures at his command in the treatment of his patient and not to experiment with human life in order to determine the efficacy of a new remedial agent, although by such a course the problem might be speedily solved. Consequently, in many instances, it has been a difficult matter to decide how much of the cure should be attributed to the usual method of treatment, and how much to bacterial immunization. I have striven throughout to give an unprejudiced opinion, and in dubious cases have refrained from placing the credit to bacterin inoculations. Nevertheless, in certain classes of cases, the results have been consistently so striking that the value of inoculation by dead bacteria is undeniable.

ABSCESSES

A review of the table of cases indicates that in the treatment of abscesses a fruitful field is afforded for bacterin therapy. Two deaths have occurred in my series, but they were both instances in which active

TABLE OF CASES

No.	Case.	Age.	Disease.	Bacteria.	Duration of Disease.	Bacterin. Autogenous.	Bacterin. Stock.	Number of Inoculations	Average Dose of Inoculations.	Duration of Treatment.	Remarks.	Result
			ABSCESS									
1	W. M..	3	Axillary	B. tuberculosis M. aureus and albus	1 yr....	.. +	+	8	B.=100,000,000; T.=.00005 mg..	3 mos....	General tuberculosis. Mixed infection. Pyemia. Pulmonary hemorrhage.	Death.
2	A. G...	23	Pulmonary	B. coli communis Streptococcus pyogenes	12 yrs..	+	..	3	C.=250,000,000; S.=50,000,000	10 dys....	Expectoration very profuse (12 oz. a day) and malodorous. Still under observation. Negative for T. B.	Negative.
3	L. C...	4	Multiple subcutaneous	M. aureus	10 dys..	+	..	2	200,000,000	2 wks....	Complicated convalescence following extensive burns.	Cure.
4	J. Z...	22	Multiple subcutaneous	M. aureus	1 wk...	+	..	3	400,000,000	10 dys....	Complicated convalescence following typhoid fever...	Cure.
5	A. B....	24	Pelvic	M. aureus M. albus	3 mos..	+	..	6	800,000,000	1½ mos..	Sponge left in abdomen at time of operation causing abscess and rectal fistula.	Improvement.
6	R. G...	22	Pelvic	B. pyocyaneus B. coli communis B. tuberculosis	3 wks..	+	..	1	400,000,000	2 wks....	High, irregular fever. Very septic. Followed laparotomy. Pleuropneumonia. Sputum = T. B.	Death.
7	W.F ..	40	Subdiaphragmatic	M. aureus M. albus	2 wks..	+	..	12	300,000,000	5 wks....	Suppuration following operation was very profuse and persistent.	Cure.
			SINUS									
8	B. S....	17	Jaw	M. aureus	1 mo...	+	..	19	250 to 800,000,000	19 wks...	Osteomyelitis was associated with the persistent suppuration. Progressive gain in weight occurred.	Cure.
9	R. G...	22	Abdomen	B. coli communis B. pyocyaneus B. tuberculosis	3 wks..	+	..	1	400,000,000	2 wks....	See Case 6. Very septic from pelvic abscess. No tuberculin treatment.	Death.
10	W. M..	3	Knee	B. tuberculosis	1 yr....	..	+	8	B.=100,000,000; T.=.00005 mg..	3 mos....	Pulmonary hemorrhage. See Case 1. General tuberculosis. Mixed infection. Very septic.	Death.
11	H.G.L.	37	Malar	M. aureus and albus M. albus M. aureus	1 yr....	+ .. +	..	8	500,000,000	2½ mos..	Persistent sinus in rt. malar region for months, on which the best surgeons in Philadelphia had operated. Bier treatment.	Cure.
12	U. W..	62	Mouth	Streptococcus pyogenes M. albus	2 wks..	+	..	3	S.=100,000,000; M.=200,000,000	3 wks....	Sinus resulted following initial lymphadenectomy for carcinoma of lip.	Negative.
			FISTULA									
13	G. C. F.	57	In ano	M. albus	3 mos..	+	..	6	200,000,000	6 wks....	Small, slightly suppurating sinus in anal region, associated at times with induration. Bier treatment.	Negative.
14	A. B...	24	Rectal	M. aureus and albus	3 mos..	+	..	6	500,000,000	1½ mos..	Formed from pelvic abscess. See Case 5.	Improvement.
15	A. B...	24	Vesical	M. aureus M. aureus and albus	3 mos..	+	..	6	500,000,000	1½ mos..	See Cases 5 and 14. Subsequently entirely recovered. Undetermined as to whether fistula is vesical or urethral.	Improvement.
			EMPYEMA									
16	M.McK.	17	Thoracic	B. pyocyaneus	4 wks..	+	..	3	400,000,000	3 wks....	Developed pleurisy and pleural effusion following appendectomy. Rib resection. Drainage. Sapremia.	Death.
17	A. L...	18	Thoracic	M. albus M. aureus	1 yr....	.. +	.. ..	.. 17	400 to 800,000,000	5 mos....	Has had two or three operations, but discharge has always persisted. Sequestrum removed. M. albus disappeared. Bier treatment associated.	Marked improvement.
			POSTOPERATIVE INFECTIONS									
18	M.....	45	Gastroenterostomy	B. coli communis	2 wks..	..	+	1	80,000,000	5 dys....	Persistent suppuration from laparotomy wound following gastroenterostomy for inoperable carcinoma.	Improvement.
19	M. B...	45	Partial gastrectomy	M. aureus B. coli communis	3 wks..	..	+	2	100,000,000	2 wks....	Infection of laparotomy wound following partial resection of stomach.	Cure.
20	DeG, ..	50	Erasion of bubo	B. punctatum M. aureus	1 wk...	+	..	4	300,000,000	3 wks....	Following operation a typical phagedena of abdominal wall occurred. Completely stopped following first inoculation.	Improvement.
21	P.....	40	Fracture of patella	M. aureus	5 dys...	+	..	3	250,000,000	2 wks....	Patella was wired and infection occurred between fascia and skin. Patient very fat.	Improvement.
22	D.....	48	Breast amputation	B. pyocyaneus	2 wks..	+	..	4	180,000,000	2 wks....	Persistent suppuration following operation. Patient had renal complications and very stout.	Death.
23	F.....	30	Hypoglossofacial anastomosis.	Streptococcus pyogenes	2 dys...	+	..	2	75,000,000	1 wk....	A diffuse cellulitis occurred on the side of the neck operated. Patient's improvement was prompt.	Cure.
24	D.....	30	Craniotomy	M. aureus	2 wks..	+	..	3	200,000,000	3 wks....	No appreciable effect. Fungus cerebri developed	Negative.
25	J. L....	35	Craniotomy	M. albus	3 wks..	+	..	2	300,000,000	2 wks....	Mental aberration prevented a continuation of treatment, patient refusing to have the hypodermic needle.	Negative.
26	McE....	40	Craniotomy	M. aureus	2 wks..	+	..	8	400,000,000	7 wks....	Mental symptoms and symptoms of meningitis supervened. Suppuration steadily decreased and temperature fell.	Improvement.
			OTITIS MEDIA									
27	M. T ..	10	Chronic suppuration	B. ferrugineum	9 yrs...	+	..	6	100,000,000	5 wks....	Immediately following inoculations, discharge from ear has increased. Still under treatment.	Negative.
			OSTEOMYELITIS									
28	S. S....	19	Tibia, acute	M. aureus	3 dys...	+	..	3	150,000,000	10 dys....	A blood culture early showed Micrococci aureus following operation. Treatment was futile. Patient worse. Still under treatment.	Negative.
29	J	44	Tibia, chronic	M. aureus M. albus B. fluorescens	6 mos..	+	..	1	400,000,000	1 wk....	Following compound fracture of leg, a sinus has persisted for months. No evidence of caries.	Improvement.

			OSTEOPERIOSTITIS									
30	E. R...	28	Gonorrheal osteophytes.....	M. gonorrhœæ.	1 yr....	..	+	6	20,000,000.....	1 mo.....	*X*-ray demonstrated exostoses of both ossa calcis. Repeated gonorrheal infection. Walking, on account of pain at times, was almost unbearable.	Improvement.
			PROSTATITIS									
31	E. R...	28	Gonorrheal, chronic.....	M. gonorrhœæ.....	1 yr....	..	+	6	20,000,000.....	4 wks....	Treatment by inoculations, associated with prostatic massage and passage of urethral sounds.	Improvement.
			URETHRITIS									
32	E. R...	28	Posterior, chronic,.....	M. gonorrhœæ.....	12 mos.	..	+	6	20,000,000.....	1 mo.....	At end of four weeks two-glass test showed urine to be practically free of shreds. See Cases 30 and 31.	Cure.
			CELLULITIS									
33	M. P.T.	60	Hand and forearm.....	Streptococcus pyogenes.... M. aureus.....	2 wks..	+	..	3	S.=56,250,000; A.=300,000,000	9 dys.....	Patient's vitality was very poor. Slight temporary improvement as regards suppuration. Osteomyelitis. Amputation of finger.	Negative.
34	DeG...	50	Abdominal wall.....	B. punctatum..... M. aureus.....	1 wk...	+	..	4	300,000,000.....	3 wks....	See Case 20.....	Improvement.
35	F.....	39	Neck	Streptococcus pyogenes....	2 dys...	+	..	2	75,000,000.....	1 wk.....	See Case 23.....	Cure.
			CYSTITIS									
36	J.....	26	Urinary.....	B. coli communis.....	6 wks..	+	..	2	500,000,000.....	30 dys....	Patient had vesical symptoms for a year, but pyuria was markedly increased recently following childbirth. Dr. Ohlmacher of Detroit, to whom patient was referred for further treatment, reports that improvement has occurred.	Improvement.
			VULVOVAGINITIS									
37 to 49	Ward cases in Philadelphia Hospital.	2 to 10	Gonorrheal.	M. gonorrhœæ.....	?	..	+	3 to 10	5,000,000.....	9 to 30 dys.	The stay of the patient in the hospital was shortened in every case. Smears were taken from all the children prior to treatment and the diplococcus was always demonstrable. Its earliest disappearance occurred after the second inoculation. In one case no local treatment was given and a brilliant result followed.	Improvement.
			TENOSYNOVITIS									
50	G. M...	45	Suppurative, wrist and forearm.	M. aureus.....	4 wks..	+	..	4	400,000,000.....	4 wks....	Infection arose from wound of hand. Several operations on hand and forearm ensued, but suppuration and swelling persisted, threatening septicemia. Immediate response.	Improvement.
51	M. P.T.	60	Fingers, hand and wrist, subacute.	Streptococcus pyogenes.... M. aureus.....	2 wks..	+	..	3	S.=56,250,000; A.=300,000,000	9 dys	Patient was rheumatic, decrepit and victim of weak heart. Improvement inconspicuous. Osteomyelitis. Amputation.	Negative.
			ARTHRITIS									
52	W. M..	3	Infectious, suppurative, acute, wrist.	M. aureus..... M. albus.....	2 wks..	+	..	7	100,000,000.....	3 mos....	Several sinuses discharged quantities of pus in vicinity of wrist joint. T. B. Osteomyelitis may be present.	Negative.
53	C.....	20	Infectious, suppurative, acute, knee.	M. aureus.....	4 wks..	+	..	4	400,000,000.....	4 wks....	Suppuration was persistent and profuse. Osteomyelitis. Amputation. Recovery.	Negative.
54	O. S....	18	Infectious, subacute, knees..	M. albus.....	W eeks	+	..	3	300,000,000.....	3 wks....	Culture of aspirated fluid from knee demonstrated M. albus. Infection was evidently hematogenous.	Negative.
55	C. M...	20	Infectious, gonorrheal, chronic, knee.	M. gonorrhœæ.....	Weeks.	..	+	2	50,000,000.....	3 wks....	Diagnosis made from history and clinical symptoms. Organism not isolated.	Improvement.
56	A. G...	16	Infectious, gonorrheal, acute, wrist.	M. gonorrhœæ.....	4 wks..	..	+	3	50,000,000.....	3 wks....	Organism not isolated. Swelling quickly subsided....	Cure.
57	J. A....	22	Infectious, gonorrheal, acute, knee.	M. gonorrhœæ.....	5 wks..	..	+	4	50,000,000.....	4 wks....	History very clear. Local urethral treatment. Arthrotomy considered because of great swelling and pain. Response to inoculations was decisive.	Cure.
58	C.....	24	Infectious, gonorrheal, chronic, knee.	M. gonorrhœæ.....	5 yrs...	..	+	1	50,000,000.....	1 wk.....	Motion in joint is almost nil. Patella fixed. Has been quiescent for years, until recent trauma relighted the process. Under treatment at present.	Improvement.
			ERYSIPELAS									
59	U. W..	62	Acute, face and neck.....	Streptococcus pyogenes....	2 dys...	+	..	1	100,000,000.....	5 dys.....	After subsidence of temperature and healing of mouth sinus, infection occurred two weeks after operation.	Cure.
60	J. B. C.	35	Recurrens, thighs and legs...	Streptococcus pyogenes....	13 yrs..	..	+	4	50,000,000.....	6 wks....	Both legs in a state of chronic hyperplasia of the connective tissue. For years has been subject to irregular attacks of erysipelas in both thighs, especially occurring in spring.	Improvement.
			ACNE VULGARIS									
61	H. E. T.	15	Pustular.....	M. albus.....	2 yrs...	+	..	18	1,000,000,000.....	6 mos....	Internal medication of Hydrarg. Chlorid. Corrosivi.	Improvement.
62	B. E...	23	Pustular.....	M. albus..... M. aureus.....	7 yrs...	+ +	..	24	800,000,000.....	1 yr	Treatment suspended for five months in winter. Mercury, strychnin and iron pill. Hygienic treatment.	Improvement.
63	E.W. C.	18	Pustular.....	M. albus.....	5 yrs...	+	..	13	900,000,000.....	22 wks...	Nose and throat treatment for nasal obstruction and catarrh. Mercury, strichnin and iron pill. Dietetic and hygienic treatment.	Improvement.
64	L. R...	21	Pustular.....	M. albus.....	2 yrs...	+	..	6	500,000,000.....	6 wks....	Operation for goiter. Tonic and sedative treatment.	Cure.
65	J. B. K.	40	Pustular.....	M. aureus.....	15 yrs..	+	..	5	880,000,000.....	2 mos....	Sexual neurasthenia. General dietetic and hygienic rules. Nux vomica and arsenic pill. Triple valerianate pill.	Cure.
			FURUNCULOSIS									
66	W. S...	35	Forearm	M. aureus.....	1 wk...	+	..	2	350,000,000.....	10 dys....	Incision and drainage. Bier cup.....	Cure.
67	J. H. S.	19	Neck	M. aureus.....	3 wks..	+	..	4	400,000,000.....	4 wks....	Incision and drainage. Bier cup.....	Cure.
68	W.	21	Neck	M. aureus.....	3 wks..	+	..	3	325,000,000.....	3 wks....	Incision and drainage. Bier cup. Health run down. Recurrences.	Cure.
69	L.	22	Axilla.....	M. aureus.....	2 wks..	+	..	4	425,000,000.....	5 wks....	A dermatitis or eczema of chronic type seemed to be the original cause and focus for recurrences.	Cure.
70	E. V. J.	30	Back	M. aureus.....	3 mos..	+	..	4	500,000,000.....	2 wks....	Health run down. Nervous. Boils occurred previously on nose and finger. General tonic treatment.	Cure.
71	J. Z....	22	Back	M. aureus.....	1 wk...	+	..	3	400,000,000.....	10 dys....	Complication of typhoid fever. None occurred after first inoculation.	Cure.

TABLE OF CASES—(Continued)

No.	Case.	Age.	Disease.	Bacteria.	Duration of Disease.	Bacterin. Autogenous.	Bacterin. Stock.	No. of Inoculations.	Average Dose of Inoculations.	Duration of Treatment.	Remarks.	Result
			CARBUNCULOSIS									
72	G.....	65	Neck	M. aureus	3 wks..	+	..	2	880,000,000.....	5 dys....	Delirious for two weeks. Pyelonephritis. Pneumonia. Myocarditis. Heroic stimulation. Urine and lungs cleared up immed. Carbuncle speedily granulated.	Improvement.
73	C. S. Jr.	45	Neck	M. aureus	2 wks..	+	..	2	400,000,000.....	5 dys....	Small incision for drainage	Cure.
74	S.....	42	Neck	M. aureus	2 wks..	+	..	3	450,000,000.....	2 wks....	Carbuncle of neck healed very speedily. Bier cup. During convales. abscess of ischio-rectal space formed.	Cure.
75	McM..	34	Neck and forearm	M. aureus	3 wks..	+	..	2	400,000,000.....	2 wks....	Incision and drainage. Bier cup	Cure.
76	S. F....	35	Chin	M. aureus	4 wks..	+	..	3	450,000,000.....	3 wks....	Huntingdon's chorea. Stock bacterin prepared from eight different strains of cultures employed.	Cure.
77	L. C. B.	29	Neck	M. aureus	1 wk...	+	..	4	500,000,000.....	3 wks....	Incision and drainage. Bier cup. Recurrence	Cure.
78	B.....	33	Neck	M. aureus	2 wks..	+	..	2	400,000,000.....	2 wks....	Incision and drainage. Bier cup	Cure.
			TUBERCULOSIS									
79	W. M..	3	Elbow	B. tuberculosis	1 yr....	..	+	8	B.=100,000,000; T.=.00005 mg.	3 mos....	Mixed infection. Pyemia. General tuberculosis. Pulmonary hemorrhage.	Death.
80	A. T....	18	Enteritis	M. aureus and albus B. tuberculosis	..... 2 mos..	+	+	2	.0001 mg.....	2 wks....	Patient greatly emaciated and grew steadily worse	Death.
81	C. B....	5	Epiphysitis, tibia	B. tuberculosis	4 wks..	..	+	3	"B. E.," .0001; "B. F.," .001 mg.	3 wks....	Following third inoculation, which was less than its predecessor, temp. rose considerably and was maintained, child dying of miliary tuberculosis.	Death.
82	W. M..	3	Face	B. tuberculosis M. aureus and albus	12 mos..	.. +	+	8	B.=100,000,000; T.=.00005 mg.	3 mos....	See Cases 1, 10, 52 and 79. Pyemia	Death.
83	K. D....	45	Hip	B. tuberculosis B. pyocyaneus	4 mos..	.. +	+	7	B.=300,000,000 T.=.0001 mg.	5 mos....	Pulmonary tuberculosis complicated treatment	Death.
84	T.H.,Jr.	5	Sacroiliac	B. tuberculosis B. proteus vulgaris B. coli communis	6 mos..	..	+	9	200,000,000.....	2 mos....	Child very anemic and waxy in appearance	Improvement.
85	G.....	19	Hip	B. tuberculosis	4 wks..	..	+	19	.0002 to .005 mg.	9 mos....	Intermission of five months without treatment	Improvement.
86	T. M....	18	Hip	B. tuberculosis M. aureus	3 wks..	.. +	+	15	B.=400,090,000; T.=0.0001	3 mos....	Beck's bismuth injection acted deleteriously and complicated inoculation treatment. Mixed infection.	Improvement.
87	J. C....	4	Hip	Streptococcus pyogenes M. aureus and albus	2 wks..	+ +	..	21	B.=200,000,000 T.=.0003	4 mos....	Fresh air and antituberculosis measures	Improvement.
88	J. B....	8	Hip	B. tuberculosis M. albus	5 wks..	.. +	+	12	B.=200,000,000; T.=.0002	10 wks...	Fresh air and antituberculosis measures	Improvement.
89	W. M..	3	Knee	B. tuberculosis M. albus and aureus	12 mos..	.. +	+	8	B.=100,000,000; T.=.00005	12 wks...	See Cases 1, 10, 52, 79 and 82. Pyemia	Death.
90	I. W....	3	Mastoid	B. tuberculosis	1 wk...	..	+	3	0.0001 mg.....	10 dys...	Temperature dropped to normal quickly. Wound granulated rapidly. General tonic treatment.	Improvement.
91	N. A....	7	Mastoid	B. tuberculosis	2 wks..	..	+	4	0.0001 mg.....	4 wks....	Wound healed speedily. At same time an epiphysitis of metacarpal bone subsided.	Improvement.
92	N. A....	7	Epiphysitis, metacarpal	B. tuberculosis	2 wks..	..	+	4	0.0001 mg.....	4 wks....	Immobilization of metacarpal phalangeal joints. General antituberculosis measures.	Improvement.
93	L. H ..	30	Peritoneum	B. tuberculosis	1 wk...	..	+	56	0.0001 to 6 mg...	10 mos...	Ordinary tuberculosis measures. Has gained 10 lbs. in weight. Peritoneum at time of exploratory laparotomy was literally covered with tubercles.	Cure.
94	K. D....	45	Lungs	B. pyocyaneus B. tuberculosis	4 mos..	+	.. +	7	B.=300,000,000: T.=.0001	4 mos....	See Case 83. Condition incidental to tuberculosis of hip, tuberculosis was a mixed infection.	Death.
95	W. M..	3	Lungs	B. tuberculosis M. albus and aureus	12 mos..	.. +	+	8	B.=100,000,000; T.=.00005	3 mos....	See Cases 1, 10, 52, 79, 82 and 89. Pyemia	Death.
96	P.....	45	Shoulder	B. tuberculosis	6 yrs..	..	+	21	0.00000002 mg....	8 mos....	Shoulder resected years before. Anemic. Cardiac dilatation. Developed pelvic abscess. (T. B.)	Death.
97	J. T....	4	Hip	B. tuberculosis	3 wks..	..	+	2	0.00000005 mg....	2 wks....	Obliged to suspend inoculations. No result	Negative.
98	R.....	38	Spine	B. tuberculosis	4 wks..	..	+	7	0.00000001 mg....	7 wks....	Discharged from hospital	Improved.
99	J.....	20	Hip	B. tuberculosis M. aureus	3 wks..	.. +	+	3	100,000,000.....	3 wks....	Usual antituberculous treatment. Temperature fell.	Improvement.
100	C.....	22	Spine	B. tuberculosis Streptococcus pyogenes M. aureus. B pyocyaneus.	2 wks..	..	+	4	300,000,000.....	4 wks..	Suppuration decreased markedly. Posas abscess	Improvement.
101	C. Y....	14	Spine	B. tuberculosis M. aureus and streptococcus	6 mos..	..	+	6	B.=200,000,000; T.=.0001	6 wks....	Vitality very low. Iliac abscesses	Improvement.
102	H. H..	25	Spine	B. tuberculosis M. aureus	1 mo...	..	+	11	B.=350,000,000; T.=.0001	3 mos....	Three weeks after injection of Beck's bismuth paste patient developed pulmonary hemorrhages and died.	Death.
103	E. J....	5	Spine	B. tuberculosis M. aureus	4 wks..	..	+	21	B.=400,000,000; T.=.0002	4 mos....	Psoas abscesses. Temperature steadily decreased. Gained weight.	Improvement.
104	S. Y....	4	Spine	B. tuberculosis M. aureus	3 wks..	..	+	5	200,000,000.....	4 wks....	Suppuration lessened markedly. Temperature lower.	Improvement.
105	A. M....	4	Spine	B. tuberculosis B. fluorescens	7 wks..	..	+	5	200,000,000.....	4 wks....	Suppuration decreased. Temperature lower	Improvement
106	T.H.,Jr.	5	Spine	B. tuberculosis B. proteus vulgaris B. coli communis	6 mos..	..	+	9	B.=200,000,000; T.=0.00005	2 mos....	Associated with sacro-iliac disease. Anemia	Improvement.

immunization was clearly contraindicated. In one, Case 1, the patient was in an advanced stage of tuberculosis and the victim of pyemia; in the other, Case 6, the patient was very septic and had the complication of pulmonary tuberculosis with pleuropneumonia, superadded to which the pus from the abscess, together with other organisms, demonstrated the *Bacillus pyocyaneus*, a bacterium which, in my experience, has always been a bad omen and with the bacterin of which in therapy I have never been able to obtain the slightest success. I am unable to explain this fact, save that it is usually an infection superimposed on a previous suppuration, and is independent of the particular bacterium causing the primary infection; that is, it acts as a scavenger of the primary suppuration—a pus parasite, as it were. It would seem, therefore, illogical to expect that anything can be gained by stimulating, through inoculation, the cells of the human organism to the production of antibodies, by the bacterin of a bacterium which in itself may be entirely dependent on the action and products of a pre-existing infection. Especially is this true if we may accept the theory of the specificity of opsonins.

In multiple subcutaneous or superficial abscesses, either acute or chronic, the results have been most brilliant. In two instances, Cases 3 and 4, not a single abscess developed after the first bacterial inoculation and the pre-existent ones disappeared in remarkably short time. The clinical course of one of these cases is represented in Chart 1, associated with the temperature curve of which the phase of the opsonic index is plotted and the time of the active immunization noted.

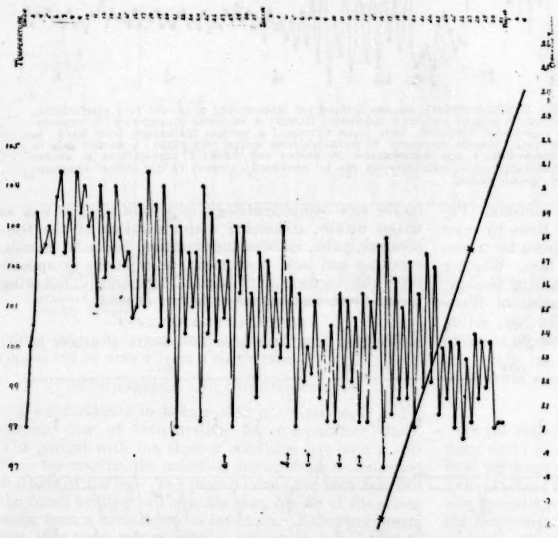


Chart 1.—Temperature (zigzag line) and opsonic index (straight diagonal line). Patient, L. C.: burns one-third to one-half body surface; multiple subcutaneous abscesses; a, skin grafts to arm and leg; b, development of scalp abscesses; c, marked loss of weight and strength; d, many subcutaneous abscesses evacuated; e, pus cultured from new abscess demonstrated micrococcus aureus. The small crosses on the diagonal line indicate inoculation with *M. aureus* bacterin, 205,000,000 bacteria. Note the parallelism existing between opsonic index and improvement in the condition and health of the patient. Note also that no new abscesses formed after the first inoculation of bacterin and the rapidity of disappearance of the recurrent pre-existent subcutaneous abscesses.

In conjunction with this I desire to call attention to the important fact that the opsonic index may be very variable and unreliable as a control of the dosage and spacing of the bacterial inoculations. For example, in

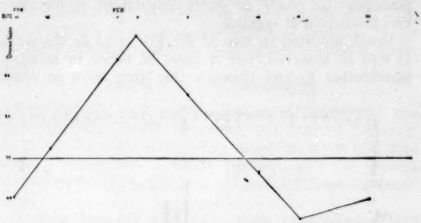


Chart 2.—Opsonic index. Patient, J. K.; acne vulgaris. The crosses on the line indicate bacterin inoculations, 880,000,000 *M. aureus*. Observe that after an initial rise the opsonic index persistently fell to the negative phase, where it remained, although a pustular acne existing for fifteen years permanently disappeared. The unreliability of the opsonic index could scarcely be better demonstrated.

Chart 1, the coincidence between the clinical symptoms and opsonic index was beautiful and all that could be desired. On the contrary, compare Chart 2 of the opsonic index of Case 65. In this instance, after an initial rise, the index fell into the "negative phase" and remained there in spite of the fact that, after four inoculations, the pustules disappeared permanently from the face of the patient, who had been a sufferer from acne vulgaris for fifteen years. From these and numerous other experiences, I have come to allow the clinical symptomatology to serve always as the paramount guide in the administration of bacterial inoculations. In my early work, and occasionally subsequently, the index was associated for what it might reveal in the nature of confirmation, but never to supersede the clinical symptoms as a factor in treatment.

In order to illustrate how ideally the symptomatology may be utilized in the conduct of bacterin therapy, to the exclusion of the opsonic index, permit me to present Chart 3 of Case 7 of my series.

SINUSES

Here, again, bacterin therapy is of undoubted value, although the results are not so striking, a much longer period being necessary to effect a cure. One cause partially responsible for this is that not infrequently carious bone or a foreign body lies at the bottom of the sinus. We cannot be expected to remove dead or dying tissue. This is the province of the surgeon. Another cause for the tardy improvement can be ascribed to the fact that these sinuses are frequently surrounded by dense fibrous tissue, crowding out granulations; hence the supply of blood and lymph necessary for the healing process. Then, too, the few lymph spaces that do exist have their orifices occluded by coagulated fibrin and necrotic tissue, preventing the lymph system from properly bathing the sinus wall.

This can be obviated to a degree, theoretically at least, as Wright has observed, by the irrigation of these tracts with a solution consisting of 0.5 per cent. sodium citrate in 5 per cent. salt or 10 per cent. sugar solution, which possesses the power of decalcification or defibrination and promotion of osmosis.

Death occurred in two of the five cases in the series, as will be observed, but it must be borne in mind, in justification to any therapy, that they were in conditions not to be alleviated by any mortal measure. Patient 11 had undergone operation several times by some of Philadelphia's most distinguished surgeons for a persistent sinus in the malar region of the face. Whether cure in this case can be assigned to bacterin therapy, avoidance of interference or the application of Bier's vacuum cup, remains undetermined. The last, acting to promote the circulation of blood and lymph, is not to be underestimated in the treatment of these cases. Case 8 seemed to be of sufficient importance to warrant the preparation of Chart 4, for two reasons: first, to show again the value of control by the clinical symptomatology; second, to illustrate even in the presence of definite and persistent osteomyelitis, how success may be expected in assisting Nature by stimulating the defense of the organism.

Even in ambulatory cases it is my custom to see that the patient is provided with and instructed in the use of a clinical thermometer, so that he may take and record his temperature at least twice daily. This may appear an unnecessary matter, and in itself is probably worthless, but it cannot be too strongly emphasized that if we are to be governed by the clinical symptoms, and are desirous of obtaining the greatest success, we must not ignore the slightest aid, for it is only by judgment based on the total symptomatology, important signs as well as trivial details, embracing a consideration of the temperature, pulse, malaise, indisposition, headache, nausea, vomiting and local phenomena, as reactions in appearance and increase of discharge temporarily following inoculations, that success or failure depends.

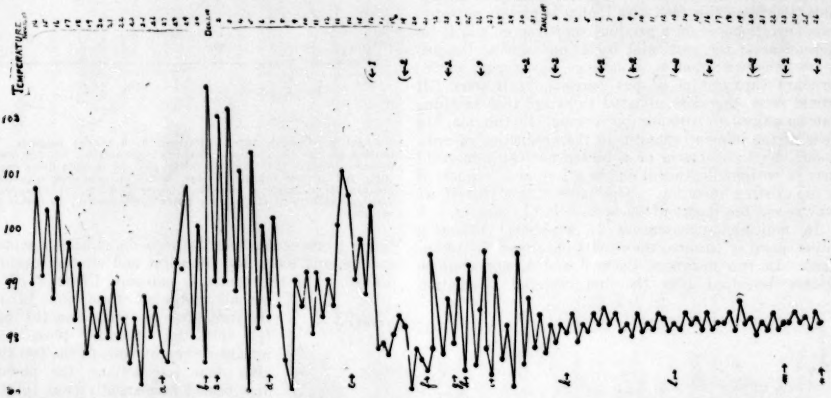


Chart 3.—Temperature. Patient, W. F. Subdiaphragmatic abscess drained per laparotomy; a, patient very comfortable; drainage satisfactory; b, patient complains of pain in hepatic region; c, leucocytes 20,000; d, excessive suppuration; e, suppuration variable, but very profuse; f, patient's appearance improved; feels much stronger; g, patient discharged from ward; h, treated in out-patient department; i, suppuration markedly decreased; k, discharge from wound very slight; l, marked gain in strength and health; m, no discharge; n, sinus healed; 1, pus demonstrates *M. aureus* and albus; 2, inoculations *M. aureus* bacterin ½ c.c. This case illustrates how admirably active immunization can be conducted by resort to the clinical symptomatology as a guide, to the exclusion of the opsonic index.

FISTULAS AND EMPYEMAS

Whatever may have been the results of others in fistulas, especially in fistula in ano, my success in this class of affections has been practically *nil*, or only that ascribed to time and Nature, as will be observed in the three cases it has been my opportunity to treat.

It seems questionable whether or not bacterial inoculations are to enter deeply into the treatment of thoracic empyemas. One of my cases, from which the *Bacillus pyocyaneus* was isolated, was uninfluenced and pro-

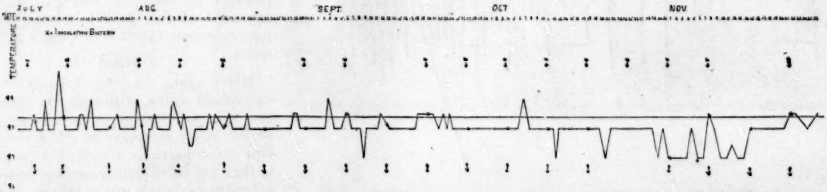


Chart 4.—Temperature. Patient, B. S.: osteomyelitis with suppurative sinus of jaw. Crosses on line indicate *M. aureus* bacterin inoculations; a, ½ c.c. bacterin; b, ⅔ c.c. bacterin; c, 1 c.c. bacterin; d, 1 c.c. bacterin; suppuration less; e, 1½ c.c. bacterin; drain removed; f, sinus healed; 1, weight 120; 2, weight 121; 3, weight 117; 4, weight 118; 5, weight 124; 6, weight 125; 7, weight 126; 8, weight 123; 9, weight 122; 10, weight 127. Note the progressive increase in weight as the temperature, at first above normal and hectic, became subnormal, then rose and fluctuated on the normal line.

ceeded to death. The other, which has been under treatment for a year, shows slight but unmistakable improvement.

POSTOPERATIVE WOUND INFECTIONS

Nine cases of this character have been treated by bacterin therapy, and, although the results have been satisfactory so far as cessation of suppuration and wound repair are concerned, it is impossible to place the credit entirely to the inoculation of dead bacteria. Those cases treated with stock bacterins have responded equally with those in which the autogenous preparation was used.

OTITIS MEDIA

In our series there occurs but one case of suppurative middle-ear disease from which repeatedly the *Bacterium ferrugineum* was isolated in pure culture. The patient has been a sufferer for nine years. He has received six inoculations during the past five weeks, and, aside from slight increase in the amount of discharge, there has been no noteworthy effect. Naturally the case has been under observation too brief a period, and conclusions should not be drawn from a single case.

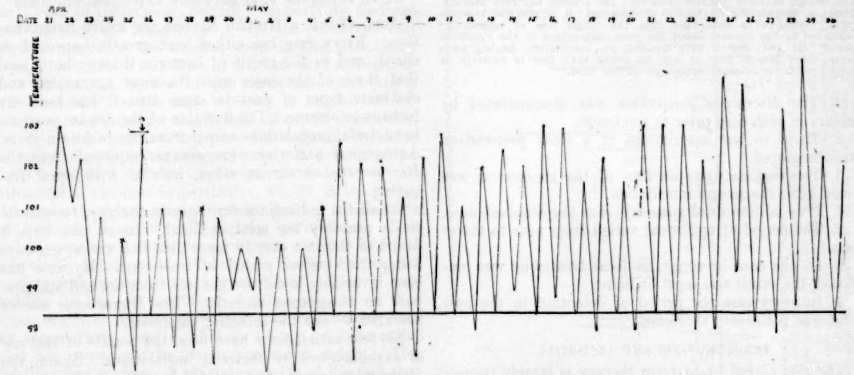


Chart 5.—Temperature. Patient, S. S.: acute osteomyelitis of tibia, followed by septicemia. The arrow indicates a point at which blood culture showed *M. aureus*; the crosses indicate *M. aureus* bacterin inoculations. Note that the patient, as indicated by the fluctuating temperature, progressively grew more septic, and that bacterin therapy was not only useless, but possibly harmful.

OSTEOMYELITIS AND OSTEOPERIOSTITIS

I am fortunate in having both a typical acute and a chronic case of osteomyelitis for comparative study. The patient with the chronic condition has been a sufferer for months, the infection arising from a compound fracture of the leg. The inoculations have been few, but the result brilliant. The acute case, No. 28 of the series, arose from a hematogenous infection. Following operation, the temperature, after a temporary fall, began to fluctuate and a bacterial inoculation was immediately made. Not the slightest effect could be observed, and a blood culture demonstrated the presence of the *Micrococcus aureus*. Subsequently two more inoculations were made, but the result has not only been not beneficial, but possibly actually deleterious. I believe that we have here a beautiful illustration for the contraindication of active immunization in acute bacteriemia. So instructive is this case that I have deemed it advantageous to show the temperature curve (Chart 5).

The only case of osteoperiostitis is one of subacute or chronic gonorrheal infection. The patient for a year was a sufferer from exostoses of the os calcis, demonstrated by the *x*-ray, causing him extreme pain on walking and incapacitating him from work. It is hoped that by Neisser bacterin the further formation of osteophytes may be stayed and the patient immunized against the gonococcus so that an operation may be undertaken with the prognosis of a reasonable degree of success. After six inoculations the pain on walking has decreased markedly.

PROSTATITIS AND URETHRITIS

One patient with chronic gonorrheal prostatitis has been not only greatly improved, but practically cured. In justice to other therapeutic measures, be it said that urinary antiseptics, prostatic massage and the passing of cold urethral sounds were not omitted from the treatment.

I have had no experience with gonococco-bacterin therapy in the treatment of acute specific urethritis. Nevertheless, in a case of the chronic posterior type complicated by stricture, a cure has been apparently effected, all shreds having disappeared from the urine, employing the usual tests. Here, again, dilatation by sounds was associated with the biologic therapy.

CELLULITIS

In the majority of cases of this affection, no improvement could be definitely ascribed to bacterial immunization, although the patients recovered. In one instance, however, Case 34, the effect was so immediate on a rapidly spreading phagedena of the abdominal wall due to the *Bacterium punctatum* that there can be no question as to the efficiency of bacterin.

CYSTITIS

The report of one case[3] can never solve any problem, and in this case a complete cure has not yet been secured, although, if the infection is primary and limited to the bladder, a favorable field seems to be afforded. An encouraging report has been received from Dr. Ohlmacher, of Detroit, who has continued the treatment in

3. Since the preparation of this paper, bacterin therapy has been applied to another case of cystitis due to the *B. coli communis*. Although slight improvement was perceptible during an abbreviated course of treatment, circumstances rendered its continuation impossible.

this case by the inoculation of autogenous *Bacillus coli communis* bacterin.

VULVOVAGINITIS

Through the courtesy of Dr. Howard C. Carpenter, I am privileged to report the results of gonococco-bacterin immunization on thirteen children treated at the Philadelphia Hospital. His report is as follows:

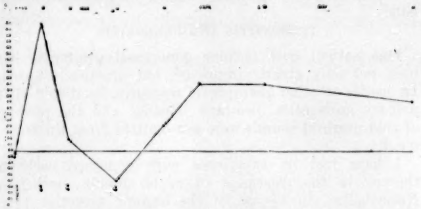


Chart 6.—Opsonic index. Patient, J. B. C.; recurrent erysipelas. The circles indicate opsonic readings; the crosses bacterin inoculations; a, inoculation 25,000,000 streptococci; b, 50,000,000 streptococci. Observe in this case that the "high tide of immunity" indicated by the opsonic index has been maintained in the "positive phase" for two and a half months, no inoculation having been given since March 22. It will be noted that this is entirely in accord with the clinical symptoms of the case.

1. The *Micrococcus gonorrhœæ* was demonstrated by smears in each case prior to treatment.
2. Three to ten inoculations of a stock preparation were employed.
3. The earliest disappearance of the gonococcus was noted after the second inoculation.
4. Five million dead gonococci was the constant dose.
5. The period of treatment varied from nine to thirty days.
6. In one case in which no local treatment was employed, the result was most brilliant.
7. In every case the period of detention in the hospital was noticeably shortened.

TENOSYNOVITIS AND ARTHRITIS

The rôle played by bacterin therapy is largely conjectural in the treatment of tenosynovitis. The patients, acute and subacute suppurative types, finally recovered after periods of prolonged treatment, but such patients also recover without bacterial inoculations. The number of cases is too limited for conclusions.

My experience with infectious arthritis seemingly justifies the conclusion that the most favorable results can be expected in the subacute and chronic affections, especially those caused by the *Micrococcus gonorrhœæ* in which infection either marked improvement or cure has always occurred. Indeed, in these cases the response to treatment frequently has been extremely prompt and the ultimate functional result better than by any other known method. Fifty million gonococci of a stock preparation constituted the average dose. From two to four inoculations were made over periods of three to four weeks. The results in other infections have been essentially negative.

ERYSIPELAS

Two cases of erysipelas have been successfully treated by biologic therapy in my series. One patient had an acute streptococcal infection of the face and neck. Recovery was prompt following one inoculation of 100,000,000 bacteria of the autogenous strain. Precisely the influence of the antigen cannot be determined even in this instance, as this infection is prone to run a short course.

The other case, No. 30, is one of peculiar interest and of sufficient importance for detailed description. I have merely reported the curve of the opsonic indices (Chart 6). This woman for thirteen years has been periodically, notably in the spring, the victim of recurrent attacks of erysipelas, involving both legs, thighs and genitalia. This infection, when her health is run down, is always superadded to a marked chronic hyperplasia of the loose connective tissues of both lower extremities. Beginning late in the winter, active immunization, employing a stock bacterin of the *Streptococcus pyogenes*, was instituted. Five inoculations were administered over a period of six weeks. The patient reports that she feels very well and that this is the first spring for a number of years that she has not been the victim of the attack of erysipelas. In this case, the opsonic index was utilized to advantage, as will be seen by consulting the chart. It would seem indisputable that bacterin therapy has a place in this type of case.

ACNE VULGARIS, FURUNCULOSIS AND CARBUNCULOSIS

Acne affords a fruitful harvest for active immunization. Every case has either been greatly improved or cured, and to the credit of bacterin therapy be it said that three of the cases were the most aggravated and obstinate types of pustular acne that it has been my fortune to observe. The duration of the disease previous to bacterial inoculations varied from two to fifteen years. Autogenous bacterins were always employed from the *Micrococcus aureus* or *albus*, isolated with equal frequency.

Of all the indications for bacterin therapy, furunculosis is probably the most brilliant. In no case have I failed to obtain a cure in more than five weeks; ten days being the shortest period of treatment. My rule has been invariably to culture the pus from the boil and prepare an autogenous bacterin. The *Micrococcus aureus* has always been the infecting organism.

No less satisfactory have been the results of therapy of carbunculosis by bacterial inoculations. Again, the *Micrococcus aureus* was isolated in seven cases. A cure always resulted, the longest period required by treatment being three weeks; the shortest, five days. In one instance a polyvalent bacterin, prepared from eight different strains of the *Micrococcus aureus*, was used with a result equally successful with any in which the autogenous preparation was employed. The clinical symptomatology has been practically the sole guide in the administration of the inoculations. The curve of the opsonic indices depicted in Chart 7 demonstrates graphically the

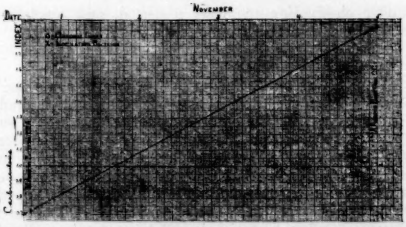


Chart 7.—Opsonic index. Patient, C. S., Jr.; carbunculosis. Circles indicate opsonic readings; crosses indicate *M. aureus* bacterin inoculations, to the left, ½ c.c., to the right 1 c.c. Note the definite rise of the opsonic index from the negative to the positive phase during the treatment of five days' duration.

rapid rise of the index often observed in the treatment of a case, No. 73, of short duration.

TUBERCULOSIS

The treatment of tuberculosis, in its manifold phases, constitutes my proudest effort. Broadly, therapy in these cases has been directed to the (1) pure and (2) mixed infections. We have heard much of tuberculin therapy, which, of course, is simply bacterin immunization by the tubercle bacillus or opsonotherapy, if you please, when the bacillus emulsion, "B. E.," product is employed.

The cases in my series should also be divided into the chronic and acute classes. With the acute class the results have been anything but encouraging. Here, again, my belief has been sustained that we must not expect success. It is probably true that in incipient tuberculosis we have to deal with a bacteriemia, and it has been my fortune, in the artificial inoculation treatment of such cases, invariably to experience failure. The results of bacterin therapy in my work with the early cases of tuberculosis certainly supports the findings and opinion of Rosenberger. In the subacute and chronic stages of the disease, even in the pulmonary type, I have reason to believe in the statement of Trudeau and others. A review of the cases tabulated under "Tuberculosis" in the table of cases is almost self-explanatory and confirms this belief. Many of these cases, for divers reasons, have not passed to immunizing doses of tuberculin or to the stage of cure. A great number have manifested definite improvement. I desire to call attention to one case in particular, No. 93 in the series. An exploratory laparotomy revealed general tuberculosis of both the visceral and parietal peritoneum. The patient was a very sick young woman and her life was practically despaired of. Tuberculin therapy by "B. E." variety was instituted in August, 1908. After a very tedious regime of treatment continuously since that time, she is at present positively unaffected in any way by inoculations, weekly, of 6 to 10 mg. of tuberculin, and has gained ten to fifteen pounds in weight. Her health seems perfect. I am not unaware of the fact that occasionally such patients recover after a simple laparotomy.

The particular phase of tuberculous disease to which I especially desire to direct attention is the mixed infection so constantly superimposed on and associated with Pott's disease and hip disease—indeed, any bone or joint tuberculosis. It is well known how frequently these complex mixed infections fail to improve and ultimately cause the death of the child. I do not desire to be overoptimistic, but I am very sanguine over my successes with bacterin therapy in this class of cases, and do not hesitate to say that in no instance in which proper surgical treatment and antituberculous measures were associated with bacterial inoculations have I failed to observe improvement in the health of the child. I have made it a practice to culture and reculture the pus from time to time for the preparation of autogenous bacterins. Commonly as many as three different bacterins have been alternated in the immunization process. So soon as the temperature falls to 100, or lower preferably, and remains permanently below that grade, tuberculin inoculations are begun. I have been inclined to believe, judging from the cases under my observation, that better results have attended the process of active immunization when, just as in tuberculin therapy, pure and simple, the treatment has been started with relatively small bacterin inoculations, progressively in-

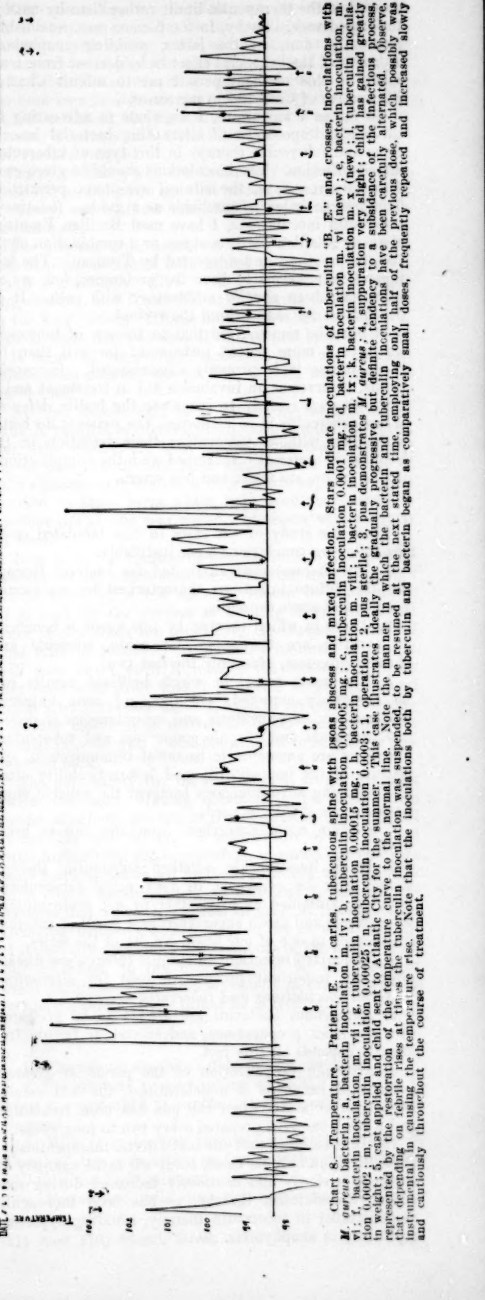


Chart 8.—Temperature. Patient, E. J.; caries, tuberculous spine with psoas abscess and mixed infection. Stars indicate inoculations of tuberculin "B. E." and crosses, inoculations with *M. aureus* bacterin: a, bacterin inoculation m. iv; b, tuberculin inoculation 0.0005 mg.; c, tuberculin inoculation 0.0001 mg.; d, bacterin inoculation m. vi (new); e, bacterin inoculation m. vi; f, bacterin inoculation, m. vii; g, tuberculin inoculation 0.00015 mg.; h, bacterin inoculation m. viii; i, bacterin inoculation m. ix; k, 4; suppuration very slight; child has gained greatly in weight; at present time child is under treatment at Atlantic City for the summer. This case illustrates ideally the gradually progressive, but definite tendency to a subsidence of the infectious process, represented by the restoration of the temperature curve to the normal line. Note the manner in which the bacterin and tuberculin inoculations have been carefully alternated. Observe, that depending on febrile rises at times the tuberculin inoculation was suspended to be resumed at the next stated time, employing only half of the previous dose. Bacterin was instrumental in causing the temperature rise. Note that the inoculations both by tuberculin and bacteria began as comparatively small doses, frequently repeated and increased slowly and cautiously throughout the course of treatment.

creased to the therapeutic limit, rather than by recourse to large dosage, thereby, in the former case, establishing immunity, and, in the latter, avoiding anaphylaxis. Apropos of the beneficial effect to be derived from treatment by this method, permit me to submit Chart 8, illustrative of Case 103 in my series.

So far as I am aware, I am alone in advocating the value and importance of alternating bacterial inoculations and tuberculin therapy in this type of tuberculous mixed infection. The inoculations should be given every four to seven days, the clinical symptoms permitting. The opsonic index is unreliable as a guide. Relative to tuberculin inoculations, I have used Bacillen Emulsion alone or Bouillon Filtrate alone, or a combination of the two, as practiced and advocated by Trudeau. The last, theoretically, seems to have the preference, but my results have been equally satisfactory with each. It all depends on the man behind the syringe.

It must be remembered that in the use of tuberculin we have a more potent instrument for evil than for good, unless it is properly administered. In careful hands, it serves as an invaluable aid in treatment and is Nature's own remedy to stimulate the bodily defenses. When tuberculin is so employed, the patients do better with than without tuberculin; their retention in the hospital is materially shortened and the complications, if they occur, are fewer and less severe.

CONCLUSIONS

From the study of the cases in this tabulated series the following conclusions seem justifiable:

1. The diseases contraindicated for bacterin therapy are the diffuse infections characterized by septicemia, pyemia and grave sapremia.

2. Those in which therapy by this agent is beneficial or curative are the superficial acute, subacute and chronic processes, especially the last two.

3. The acute cases, in which brilliant results can be uniformly expected, are those of acne vulgaris, furunculosis, carbunculosis and subcutaneous abscesses.

4. Subacute and chronic gonorrheal and tuberculous affections are amenable to bacterial immunization, and because of the impossibility and impracticability often of employing an autogenous bacterin the reliable stock preparations should be used.

5. Certain acute gonorrheal infections can be benefited.

6. It is questionable whether tuberculin therapy should ever be employed in very acute tuberculosis. Opinion is divided as to whether or not acute miliary tuberculosis and death supervened as a result of tuberculin therapy in one of our cases, No. 81 of the series.

7. The mixed infections in chronic tuberculous disease afford an important prospective field for *alternating bacterial inoculations and tuberculin therapy.*

8. Autogenous bacterins are always to be preferred over the stock preparations, and success or failure frequently depends on this fact.

9. Although the duration of the period of greatest potency of bacterins is undetermined, the best results have been obtained when the pus has been recultured and a fresh bacterin prepared every two to four weeks.

10. It is believed that the best effects, therapeutically, particularly in chronic cases, occur when the quantity of bacterin is slowly and cautiously increased during successive inoculations, thereby, as has been thoroughly demonstrated in tuberculin therapy, avoiding hypersusceptibility or anaphylaxis.

11. Therapy by both bacterins and tuberculins can be satisfactorily executed by keen observance of the clinical symptomatology. Reliance on the opsonic index as a guide is not only unnecessary, but often actually conducive to erroneous conclusions, owing to its variability.

12. Bacterin therapy, by virtue of its potency to do more harm than good, when unskilfully managed, will or should probably not become a universal therapeutic measure in the hands of the general practitioner, unfamiliar with bacteriology or work in the laboratory. Ignorance and wantonness are incompatible with ambition and energy, and an otherwise meritorious therapeutic agent thus abused will ultimately fall into disrepute.

13. Therapy by the employment of bacterins made from *Bacillus pyocyaneus* has been entirely useless.

14. Bacterins and tuberculins are not "cure-alls," but when intelligently used serve as invaluable aids to Nature in fortifying the bodily defenses, thereby accelerating convalescence, diminishing complications and promoting cure.

116 South Nineteenth Street.

PASTEURIZATION OF MILK *

ROWLAND G. FREEMAN, M.D.
NEW YORK

Public opinion in this country swings violently in one direction or another, occasionally on insufficient premises; and this, I think, applies to the present attitude among many pediatrists in this country concerning the pasteurization of milk.

We can all agree that what we want is a safe, raw milk, since we all wish, in the artificial feeding of infants, to approximate as nearly as is feasible the condition of the food as obtained by the infant at the breast.

The only questions for discussion, then, are: Can we obtain a safe, raw milk for the feeding of infants? And, if not, is milk injured by heating, and to what extent, and by what temperature?

There can be no question but that we can to-day feed all the infants of New York on a much safer raw milk than was possible five or ten years ago; but what is the extent of this element of safety? Take, for example, the best milks at present produced under the certified milk plan. How safe are these milks as a raw food for infants?

The danger of tuberculosis in such milk may be said to be fairly eliminated by well-aired, well-ventilated cow stables, and by the repeated tuberculin test. But tuberculosis is one of the lesser dangers in milk. The diseases concerning the spread of which we have most tangible and incontrovertible proof are typhoid fever, diphtheria, scarlet fever, and epidemic sore throat.

Our sanitary dairies do almost all that is possible to protect us from these diseases, but those of us familiar with this subject know that epidemics may occur from the sale of certified milks. No system of control can protect a milk-supply from a mild walking typhoid, or a typhoid-carrier among the employees, unless regular bacteriologic examinations are made of the urine and feces of the employees at frequent intervals; and I take it that no such system would at present be advocated.

Diphtheria has apparently been spread by the best of our milk-supplies; what protection have we against this in any raw milk?

* Read before the New York County Medical Society, Oct. 25, 1909.

Virulent diphtheria bacilli exist in the throats of many healthy persons, and, although our best dairies have some medical supervision, no supervision could be practically enforced that would protect the milk from a beginning diphtheria or a healthy diphtheria-bacillus carrier.

The same arguments will apply to other diseases carried by milk, so that, although in our best supplies the bacteria are only one-thousandth part as numerous as in the ordinary supplies, they are still present in sufficient numbers in most certified milk to cause our suspicion until we know their identity. Now if this is true of certified milk, how much more so is it true of our ordinary milk supplies! I think we may well say that at the present time there can be no absolute security in any raw milk. This being the case, why should we not use a heated milk in which there is security?

The opinion has become current in this country that heated milk produces poorly nourished children; that it causes rickets and scurvy; that it kills the life of the milk, and that it produces chemical changes in the milk which renders it less nourishing. It may be stated that these are opinions that prevail in this country and not abroad, and I am not willing to admit that in matters dependent on clinical and hospital observations we are superior to our confrères in Europe.

This opinion began to develop in our country at the time when milk was sterilized at a boiling temperature, sometimes for two days, adopting laboratory methods. The idea was given concrete form chiefly by an article published in the *American Journal of Medical Sciences*, in 1891, by Davis, of Philadelphia, and Leeds, the chemist, of Jersey City. This article, while giving no detailed clinical data, expressed the opinion that children fed on sterilized milk, although kept free from diarrhea, did not flourish, and the chemical basis for this opinion was expressed by Leeds, who advocated sterilization at 68 C. (155 F.) for six minutes instead of the boiling temperature which had previously been used.

From this time, however, it became evident that a boiling temperature was not necessary and that lower temperatures were sufficient to destroy the bacillus tuberculosis and the other organisms feared in milk, so that we gradually began to use lower temperatures and instead of a boiling temperature of 212 F., 175 F. for twenty minutes was used and later 155 F. for thirty minutes, while now we know that 140 F. for forty minutes will afford security. Nevertheless raw milk has become much more generally used, notwithstanding its dangers.

The opinion of Davis that boiled milk causes malnutrition in children is well answered by the fact that European physicians have been using it for the past twenty or more years without having made a similar observation.

Now as to the causation of scurvy: After scurvy had first been diagnosticated in this country by Dr. Northrup and the clinical picture clearly painted, many cases began to be reported, and, as this was at a time when milk was being sterilized, a good many of the patients were fed on heated milk. But I believe that, although scurvy developed after the milk was heated, the heated milk was not the cause of the scurvy.

Out of the 356 cases of scurvy collected and studied by the American Pediatric Society in 1897, 60 per cent. were fed on proprietary foods, 19 per cent. on sterilized cow's milk, 10 per cent. on condensed milk, 3.3 per cent. on breast-milk, and only 4.5 per cent. on pasteurized milk.

From these figures, therefore, we get very little to indicate any responsibility on the part of heated milk in connection with scurvy, while, on the other hand, we have the experience of physicians abroad who feed their babies on boiled milk and who have seen much less scurvy than has been seen in this country. Our scurvy developed to a great extent at the time when milk was being fed in extreme dilutions and after illness when the food was still further reduced.

Comby of Paris, who has had a very large experience, remarked several years ago that he had seen but five cases of scurvy, and in those cases the babies were all fed on diluted milk.

The original milk depots of Paris, founded in 1892, still dispense to babies milk heated to 115 C. (239 F.), which is absolutely yellow from the conversion of sugar into caramel, and I was told at this depot last year that in the long history of these milk depots, extending over sixteen years, but one case of scurvy had been observed.

It seems to me evident, therefore, that our assumed relationship between the heating of milk and scurvy is unfounded.

Another disease said to be caused by the heating of milk is rachitis, a disease which, to my mind, however, has little connection with feeding, the main etiologic factor being insufficient fresh air, for it is a disease of cold climates only, develops only in winter, and is most marked in those races which have been accustomed to outdoor life all the year round. It occurs with all sorts of food.

Now as to the manner of heating milk: Commercial pasteurization, which consists in heating milk to a high temperature for a few seconds, should be condemned. It is used for the purpose of keeping dirty milk sweet until it can reach the consumer. It should be insisted that milk be produced in a cleanly manner, so that it will keep sweet until it reaches the consumer. Some city milk is so dirty that it is heated at the dairy and again after it reaches the city, so as to prevent its becoming sour before it is delivered. Such milk should be poured into the gutter and not allowed to be sold as pasteurized milk.

The only safety for the consumer is to get his milk sweet and raw. Having obtained it, he should then render it safe by the use of the smallest amount of heat compatible with safety. A temperature of 140 F., but little higher than the temperature in which one can bear one's hand, if continued for forty minutes, with the milk in a closed nursing-bottle, is sufficient to kill all the bacteria that we know and fear in milk, at the same time changing neither the taste nor, so far as we know, the chemical composition or the ferments of the milk. Such pasteurization, to my mind, should be still used by every physician who is conscientious in his endeavor to secure the safety of the infant he is feeding.

CONCLUSIONS

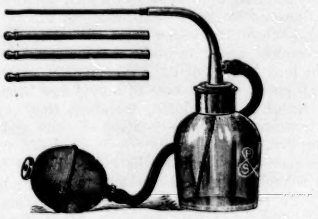
1. There is no absolute safety in any raw milk.
2. Commercial pasteurization of milk, employed to keep it sweet until it can be marketed, should be condemned.
3. Milk is in no way injured, either in taste or by chemical change or action on ferments, by pasteurization at 140 F. for forty minutes.
4. Pasteurized milk does not cause malnutrition or scurvy or rachitis.

211 West Fifty-seventh Street.

AN EASILY STERILIZABLE ATOMIZER

FRANCIS ASHLEY FAUGHT, M.D.
PHILADELPHIA

The accompanying illustration represents an improved atomizer. Recognizing that the ordinary atomizer in the hands of the average busy practitioner is far from ideal in respect to surgical cleanliness, I have had the old Philadelphia atomizer modified so that the distal portion of the nozzle (three and one-half inches) is detachable from the rest of the apparatus by means of a screw thread. This permits ready sterilization by boiling that part of the atomizer usually contaminated. To



Atomizer with duplicate removable nozzle-tips, which may be readily sterilized by boiling.

facilitate matters further, these atomizers are furnished with duplicate tips, which allow the atomizer to be repeatedly used without the delay incident to sterilization of the tip.

While this style of atomizer may not be applicable in all cases in which atomizers are employed, it is the type most universally used, so that the adoption of this suggestion should materially minimize the transference of infection from one patient to another.

The firm of George P. Pilling and Son Company have kindly followed my suggestion in the manufacture of this atomizer, which may be obtained from any instrument-dealer.

1831 Chestnut Street.

TREATMENT OF TYPHOID BY CONTINUOUS SALINE INSTILLATION *

DAVID RIESMAN, M.D.
PHILADELPHIA

I wish to preface what I have to say about the Murphy treatment in typhoid fever by a few remarks on the pathogenesis of the disease. We are accustomed to attribute the symptoms of typhoid fever to the typhoid bacillus and to such lesions, produced by ulceration of the blood-vessels, by perforation, etc., as are the indirect result of its action. The general symptomatology of the disease—the fever, the cerebral symptoms, the altered metabolism, and the acute degenerations in the parenchyma of organs—are ascribed to a typhoid toxemia brought about by the entrance into the blood of the poison of the typhoid bacillus. Unlike the toxin of tetanus, this poison is not a secretory product of the microorganism, but is an endotoxin laked out of the bodies of dead bacteria. As this view of the pathogenesis of the typhoid toxemia is the one almost universally accepted, it may be bold to question its correctness. But it seems to me that it is not a full and adequate explanation of the principal phenomena of the disease. There is another source of toxemia which the prevailing theory leaves out of account. I mentioned it in a paper published in 1899[1] and in a discussion of Dr. Mallory's address on typhoid fever before the Pathological Society of Philadelphia a few years ago.

Stated briefly, the theory or hypothesis is as follows: There occurs in typhoid fever in response to the cytogenic stimulus of the typhoid bacillus a tremendous proliferation of cells in all the lymphoid tissues of the body. Numerically this proliferation is as much beyond computation or conception as the pullulation of the bacteria themselves. All cell multiplication is attended by the elaboration of metabolic substances which enter the lymph-stream and by way of it the general circulation. When the cells die, which in typhoid fever happens soon after their birth, their disintegration products—the analogues of the endotoxins of bacteria—are also poured into the blood. Is it not conceivable that these two groups of substances—one produced during cell formation, the other during cell destruction—are factors in the toxemia and play a part in the causation of the general symptoms of the disease? Granting even that the products of metabolism of the newly formed lymphoid cells and their disintegration products are normal to the body, the quantitative increase occurring in a comparatively short time must tend to swamp the system. But it is more than probable that the metabolic products in the circumstances are abnormal.

That in the formation of the cells and of the bacteria enough proteid or other material is taken from the blood to make a difference is unlikely, although the point is worth considering.

Whatever the source of the poisons, it is eminently desirable to have a method that will eliminate them. Clinicians have endeavored to promote elimination by giving large amounts of water by the mouth and salt solution in considerable quantities by the rectum.

The good results obtained by surgeons in the treatment of peritonitis and other abdominal inflammations and in grave postoperative conditions by the Murphy method of continuous enteroclysis led me to use this method in the treatment of typhoid fever. It seemed rational to suppose that the constant instillation of salt solution into the bowel would better accomplish the result aimed at by the administration of water, namely, the filling of the blood-vessels and the increased excretion of poisons. I am aware of the fact that hitherto no positive proof has been brought that soluble poisons, at least none of an albuminous nature, are eliminated in the urine in typhoid fever; there is, however, nearly always a pronounced bacilluria.

By the Murphy method it is possible to introduce into the system extraordinary quantities of fluid. Murphy mentions the case of a child of 11 who absorbed, without losing one drop, 30 pints of salt solution a day. Such quantities I have not succeeded in introducing, nor have I attempted it, but it is easy to secure the absorption of from one-half to one gallon per day.

The method, termed proctoclysis by its inventor, is described as follows:

The patient is placed in the Fowler position. The apparatus in its simplest form consists of a fountain syringe or can with a large rubber tube attached, terminating in a

* Read before the College of Physicians of Philadelphia, May 5, 1909.

1. Riesman, David: Internal Secretions; Metabolic Toxemia, Philadelphia Med. Jour., Feb. 4, 1899.

vaginal hard rubber or glass tip flexed at an obtuse angle two inches from its tip, having numerous openings in its bulbed end. The tip should be inserted into the rectum so that the angle fits closely to the sphincter, and the tube may then be bound firmly to the thigh with adhesive strips so that it may not be expelled. The bag or can is suspended from the foot of the bed so that its base is about six inches above the level of the patient's buttocks. Once the irrigating apparatus is thus placed, it need not be disturbed for several days unless to increase or diminish the speed of influx. The solution, consisting of a dram each of sodium chlorid and calcium chlorid to the pint of water, is now placed in the reservoir and kept at a temperature of 100 F. by applied heat in the form of hot-water bags, thermolytes or an incasing can of hot water. The quantity administered depends on the severity of the case, the age of the patient and other considerations that will suggest themselves in the particular instance.

The best plan is to place a pint and a half of the saline solution in the container every two hours. The container should be elevated sufficiently to allow this all to flow into the rectum in forty to sixty minutes, giving the rectum approximately an hour's rest before the influx of fresh fluid.

I began the treatment by this method, somewhat modified, in the spring of 1908. At first I put the patients in the Fowler position, but found they did not bear this well. They were then left in bed in the recumbent posture. The solution used was the ordinary physiologic salt solution and did not contain calcium chlorid. No difficulty was experienced in keeping the tube in place without any special device. The solution flowed in so gently that hardly any was expelled. Occasionally a patient would object to the irrigation, but the majority bore it without a murmur. I have generally discontinued the instillation during the night and have persisted in it during the day, with brief interruptions in some instances. It would seem that the injection might be given with advantage throughout the febrile stage of the disease; yet it is conceivable that if absorption should not occur promptly the accumulation of water might distend the bowel, a thing not to be desired in the later stages of the disease. Careful observation in many cases will determine whether it is wise to continue the instillation through the third week.

On account of the rarity of typhoid fever in Philadelphia at this time as a result of the extension of the filtered water system, the opportunity of testing this or any other treatment is inadequate for the drawing of definite conclusions. Large as is the service at the Philadelphia Hospital, I have had since October, 1908, scarcely more than one or two cases of typhoid fever at any one time, and the total number is very small; the same condition prevails in the other hospitals.

During the past summer[2] we had a series of ten cases at the Jewish Hospital, several of them of great severity, in all of which the method of continuous saline instillation was used; all the patients recovered. The conclusions, however, can only be tentative, and all that can be said at present of the treatment is that it does two things: first, it increases the flow of urine; second, it lessens the nervous symptoms. It is difficult to see whether or not it shortens the course of the disease. It has seemed to me, however—and this opinion is shared by my hospital internes—that on account of it we have had recoveries in several desperate cases.

I have presented the subject in this brief way in the hope that those who have an opportunity may give the method a trial.

1715 Spruce Street.

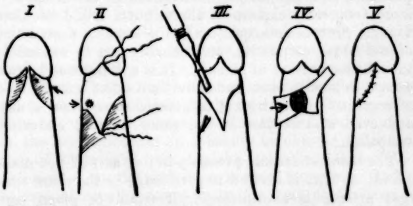
2. That is, since the reading of the paper.

CASE OF PERIURETHRAL ABSCESS *

CHARLES S. STERN, M.D.
Urologist to Hartford Hospital
HARTFORD, CONN.

The condition here reported, which I have called periurethral abscess for want of a better name, might perhaps be better termed "subfrenal abscess," as I shall shortly demonstrate. I report it as interesting because of its infrequency and on account of its etiologic significance as the cause of recurrent gonorrhea.

History.—The patient, a married man of 38, had contracted his first gonorrhea nineteen years ago. Was rapidly cured of it, and had no subsequent discomfort. After undue erethismic disturbance, some years later, he had another specific infection of the urethra, also rapidly cured, but at this time was apprised of a fistula at the side of the frenum. This sometimes discharged thin, grayish matter; at other times, nothing; it only occasionally gave symptoms of inflammatory irritation. The patient twice subsequently, after undue intercourse, acquired acute anterior gonorrhea, and, as stated, seemed certain of acquiring a fresh attack after every possible exposure. During his last attack last summer I treated him for the first time. At that time I probed into small opening of the fistula and found that it communicated with a minute opening at the other side of the frenum, as well as penetrating a pocket, which showed a depth of about 3.5 cm., and I therefore advised opening this up. The acute gonorrhea was rapidly cured, and following this the opening at the side of the frenum, which had been discharging simultaneously, also stopped running, under treatment. I did not see the patient again for six weeks; he then returned with a fresh discharge. I then took separate specimens from the urethra and fistula. Each specimen showed gonococci, but these were especially abundant in the specimen from the fistula.



Surgical treatment of a periurethral abscess. I, preputial openings at each side of frenum; II, frenum bisected; opening of abscess discovered; III, bistoury penetrating lower angle of abscess; IV, abscess cavity laid open; V, plastic work completed.

Operation.—A few treatments cured the infection, and then with the positive assurance that his reinfections had all been caused from the fistula, this was operated on, and the following interesting conditions found. The frenum was bisected on a probe passed through the two openings. On being laid back, an opening 1 cm. in diameter was seen to the right of the median line. (Fig. 2.) A director was inserted into this to a distance of 3 cm., and an incision exposed the (Fig. 4) cavity of an old sinus (1 by 2 cm.). The incision was extended to the bottom of this and careful exploration made with a fine probe to discover an opening which might lead into the canal of the urethra, but none found. The walls of the abscess cavity were lined with granular, soggy, old inflammatory tissue, which was curetted. The infiltrated tissue forming the walls was excised so far as possible, and the edges of the wound were coapted and sutured. It healed promptly, leaving a slight open pocket.

I have not previously seen or read of the counterpart of this condition, though clinically it may be compared to the less infrequent periurethral fistulas as the cause of repeated reinfections of the anterior urethra.

75 Pratt Street.

* Read before the Hartford Medical Society, Surgical Section, Oct. 25, 1909.

Therapeutics

SUGGESTIONS FOR THE PHARMACOPEIA OF 1910

USEFUL DRUGS OF THE PHARMACOPEIA OF 1900

OLIVER T. OSBORNE, M.D.
Professor of Materia Medica and Therapeutics, Yale Medical School
NEW HAVEN, CONN.

(Continued from page 291)

DRUGS USED FOR SYSTEMIC ACTION

The best drugs to stimulate the activity of the skin after absorption are arsenic and thyroid.

The best action of arsenic is obtained from liquor potassii arsenitis (Fowler's solution), and the liquid preparation is the only one that should be used when arsenic is pushed to its full physiologic limit. The best solid form of arsenic is arsenii trioxidum (arsenious acid). The primary symptoms of the overaction of arsenic are pain and distress in the upper abdomen, nausea, vomiting, flushing of the face, reddened eyelids, and swelling under the eyes in the morning. This swelling under the eyes in the morning probably represents but one thing, viz., irritation of the kidneys. If when arsenic is pushed for any reason, whether for chorea, psoriasis, leucemia, or pernicious anemia, the urine were more frequently examined, albuminuria would be often found. Serious consequences in the kidneys, destruction of red blood corpuscles, and neuritis can be caused by thoughtless overuse of arsenic. It is a dangerous poison, except in small doses, not more than 0.002 gram (1/30 of a grain) of the trioxid of arsenic three times a day, and even at this dose it can cause distinct undesired symptoms.

The iodid of arsenic probably is just as well not made official, as if it is desired to give iodin at the same time that arsenic is administered, it could be given conjointly, and the activity of both drugs better watched. The liquor arseni et hydrargyri iodidi (Donovan's solution) could be omitted for the same reasons. Two active drugs should be separately watched for their physiologic activity. There is no unique or specific value to these combinations which cannot be acquired by the administration of the same drugs separately. There is no need for the liquor acidi arsenosi. There is no need for the liquor sodii arsenatis.

When thyroid is administered for any purpose it should be remembered that its action is insidious, that it is potent, and that it can do serious harm, which may be permanent. Thyroid can produce serious loss of weight, can stimulate the thyroid gland to excessive activity, which may result in Graves' thyroid disease (exophthalmic goiter), may cause circulatory depression, faintness, and collapse turns. Its sale by druggists without a physician's prescription should be prohibited. The dose required for its continuous physiologic activity is small, from 0.05 to 0.20 gram (1 to 3 grains) of the official dried gland, two or three times a day, is often sufficient, and generally too much when its prolonged action is needed. Many times it will seem as though the preparation were inert. This is because it needs a little iodin to add to its activity. If even 0.05 gram (1 grain) of sodium or potassium iodid is administered conjointly with the thyroid treatment, it will be sufficient to saturate the thyroid extract and the thyroid secretion with the iodin which is necessary for their activity.

The only drug that is positively sure to decrease perspiration is atropin. Such treatment, of course, is only symptomatic, but it may be advisable to tide over a temporary prostrating and debilitating period of sweating. Toning up the general condition of the patient and proper hydrotherapeutic measures are the best means of combating profuse perspiration.

It is doubtful if sulphuric acid, administered internally or added to baths, is of any special value. There is no belladonna, stramonium, or hyoscyamus preparation that will act better in inhibiting perspiration than straight sulphate of atropin.

Besides local applications of heat of various kinds, the best diaphoretics are alcohol, antipyrin, and pilocarpin.

The action of alcohol is too well understood to require any description whatever.

The activities of antipyrin in this line can be used only occasionally in the beginning of acute fever. The antipyretic effect is positive and the perspiration that it causes may be profuse, and, if it persists, may need to be inhibited by atropin, lest too much prostration be caused.

To produce perspiration when dropsies or extravasated fluids are to be eliminated or when the kidneys are not properly secreting, pilocarpin has long been used. It has been found more and more dangerous on account of the profuse secretion which it causes into the bronchial tubes. In serious conditions for which pilocarpin has been used, such as in uremia, various hot air, and best "baking" or other dry heat, treatments, which are followed by profuse sweating, are much safer than is a sweating dose of pilocarpin.

If we need the sweating activity of pilocarpin, the hydrochlorid is the best preparation to use, and this should be administered hypodermatically. The pilocarpin nitrate seems superfluous. If one desires the increased secretion in the bronchial tubes from this drug, small doses of it can be administered for this purpose. If one believes that it is a stimulant to the growth of the hair, very small doses of it can be administered for this purpose. As pilocarpin represents the activity of pilocarpus, the fluidextract seems not needed.

DRUGS THAT ACT ON THE GENITOURINARY SYSTEM

It is well to subdivide the old classification of diuretics into subheadings of the objects for which the drugs are used.

(A) TO INCREASE THE AMOUNT OF URINE

The drugs most efficient in producing this result are caffein, digitalis, buchu, scoparius, and squill. These drugs can rarely cause any irritation of the kidney (except possibly slight irritation by squill) and hence will not increase inflammation in an inflamed kidney. However, it is a mistake, when there is suppression of urine in nephritis, to give such diuretics as will cause more congestion of the already inflamed kidneys. Even water should be diminished in amount.

Caffein and digitalis, of course, have their best use in passive congestion of the kidneys and when there are exudations anywhere and the circulation is at fault. It is probable that the repeated administration of strong, fresh decoctions of coffee, taken a cupful at a time, is as valuable a diuretic as is the drug caffein, the extra amount of water thus taken being probably an advantage. When administering caffein it is often forgotten

that if given after supper or at bedtime it may cause insomnia, whether in the form of coffee or the drug.

That digitalis is more efficient as a diuretic, in the form of the infusion, than in any other form, is a matter of general belief, but this is scientifically doubtful.

The clinicians who very infrequently use buchu, scoparius and squill seem to aid their patients who have disturbed secretion of urine as well as those who use these drugs frequently.

Buchu is often thought most active when fresh infusions of the leaves are made. The diuretic effect is perhaps here largely due to the increased amount of water ingested. It is probable that the fluidextract of buchu would act as well.

Scoparius (broom) is used much less as a diuretic than it was some years ago. Its active principle, spartein, has been advised as a cardiac drug when there is irregular action. In any loss of compensation it is useless, but it may sometimes quiet an irritable, irrregular heart when there is arteriosclerosis and a diminished secretion of urine.

Squill has slight tonic effect on the heart, is slightly irritant to the kidneys, and has been used largely in combination with digitalis in cardiac dropsies. It is quite probable that most of the good effect is due to the action of the digitalis. Squill has also been used as an expectorant in certain kinds of cough, but it is a nasty, disagreeable drug to take, and the syrup of squill and the compound syrup of squill could well be omitted from the Pharmacopeia. If it is desired to use tartar emetic, it can be given more pleasantly than in the syrup of squill combined with the fluidextract of seneca, i. e., hive syrup. The fluidextract of squill, the tincture of squill, and the vinegar of squill are official. Certainly if squill is needed, all of these preparations are not needed.

Uva ursi and its fluidextract, zea (corn silk), and chimaphila and its fluidextract may all be well omitted from the Pharmacopeia, and fabiana (pichi), not now official in the Pharmacopeia, should also not be added to the next Pharmacopeia. There is nothing that these last-named drugs can do physiologically that cannot be better done by the oil of santal, copaiba, and cubebs.

(B) DRUGS TO MODIFY THE CHARACTER OF THE URINE

The drugs in this class are the potash salts, hexamethylenamina (urotropin), phenyl salicylate (salol), and methylene blue.

The advantages of the alkaline potassium salts, acetate, bicarbonate, and citrate are too well understood and utilized to require discussion. The absolute necessity, at times, of rendering the urine alkaline is met by these drugs efficiently. Their prolonged administration is generally inadvisable, as it is not usually well to keep the urine alkaline for any length of time on account of the decomposition that such an abnormal reaction of the urine may cause or allow. During their excretion they stimulate the kidney somewhat and cause an increased amount of water to be passed. While the acetate is the most active, and the bicarbonate the worst tasted, the citrate seems to be sufficiently active and the most pleasant tasted. Combinations of these drugs probably act no better than a larger dose of one of them.

The value of hexamethylenamina can hardly be overstated. As a genitourinary antiseptic and as a gallbladder antiseptic it is without parallel.

Any salicylic acid carrying preparation is not only somewhat of a bowel antiseptic, but considerable of a genitourinary antiseptic, and one of the best preparations for this purpose is phenyl salicylate. Salol should not be given if there is any congestion or irritation of the kidneys, as in the intestine it breaks up into phenol and salicylic acid, and phenol is irritant to the kidneys, if in any amount, or if they are previously inflamed. Salol is an excellent bowel antiseptic for the upper part of the intestine, and therefore is an excellent antiseptic in acute disturbances of the bowels, and is valuable, in small doses, from 0.20 to 0.25 gram (3 or 4 grains), given once in six hours, in typhoid fever. It not only more or less prevents the typhoid bacilli and colon bacilli and perhaps other pathologic germs from entering the upper part of the intestine, but as a urinary antiseptic during typhoid fever it is of value. In inflammation of the pelvis of the kidneys and inflammation of the bladder and of the urethra, both hexamethylenamina and phenyl salicylate are valuable drugs.

The value of methylene blue as a genitourinary antiseptic is not so positive, and the staining of all tissues blue is of doubtful advisability. It can be given for a short time without any harmful effect, but it is used much less than it was a few years ago.

(C) STIMULANTS TO THE MUCOUS MEMBRANE OF THE GENITOURINARY TRACT

These are oil of santal, cubebs, copaiba, and cantharides. The latter is rarely used for this purpose, as it is so unpleasantly active that only small, inactive doses are given. The tincture is the only preparation used internally.

The oil of santal is the best stimulant for the urinary tract, and is much less likely to disturb the digestion than is copaiba or cubebs. As the oil of santal seems to be the best stimulant in subacute or chronic inflammation of the urinary tract, copaiba and cubebs seem almost not needed, as the best drug is none too good. As the balsam of copaiba seems to be the best preparation of copaiba, the massa copaiba could be omitted from the next Pharmacopeia. As the oleoresin of cubebs is the best preparation of cubebs, its fluidextract could be omitted from the Pharmacopeia.

The simple diuretic triticum and its fluidextract would not be missed from the Pharmacopeia. The administration of plenty of water, the patient put on a milk diet and at rest, and frequent hot baths will do more toward curing cystitis and other acute inflammatory conditions of the genitourinary tract than any of these simple so-called diuretics. The simple bitter taraxacum, with its fluidextract and extract, could also well be omitted from the next Pharmacopeia. Sabal (saw palmetto) and its fluidextract should also be omitted.

(D) DRUGS TO INCREASE THE MENSTRUAL FLOW

For this purpose there is nothing that can surpass iron, manganese dioxid and thyroid. Sabina and its fluidextract, and hedeoma (pennyroyal), and oil of pennyroyal should be omitted. As a uterine sedative the viburnum prunifolium can do all that viburnum opulus can do; therefore the viburnum opulus, with its fluidextract, should be omitted from the Pharmacopeia.

(E) DRUGS TO CONTRACT THE UTERUS

The best drugs for this purpose are ergot and quinin. As previously stated, while hydrastinin hydrochlorid seems to cause contraction of the uterus, hydrastis in any other form is of but little, if any, value.

(To be continued)

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THE VISCOSITY OF THE BLOOD

The study of the viscosity of the blood, though recent, has reached such proportions as to merit more than passing attention, not only from those interested in scientific progress, but from the clinician as well. The enumeration of the corpuscles and the estimation of hemoglobin have yielded invaluable data; the study of the reaction of the blood, its coagulation time, its specific gravity, its chemical constitution, etc., have not been without value. The practical worth of this more recent investigation remains to be determined, though some observers, notably Bachmann and Determann, are already trying to attach this new coach to the train of medical art.

Early investigators in the study of viscosity were hampered by intricate or by imperfect apparatus, and as a consequence their results were few and of doubtful value. With the advent of more efficient instruments, however, the subject gives greater promise. To Burton-Opitz, Hess, Determann, Hirsch and Beck, and to McCaskey we owe the present ready means for investigation. In principle, the devices are the same. In the Hess instrument, for example, small volumes of blood and of distilled water are drawn under the same suction through calibrated capillary tubes of equal bore, and the height to which each rises is taken as the measure of its relative viscosity. That of the blood is then expressed in terms of distilled water as a unit.

The normal viscosity varies between 3.5 and 5.5. As factors concerned in the production of viscosity the following have been noted: hemoglobin content, number of red corpuscles, the colloid and, to a lesser degree, the salt constituents of the plasma, venosity and hydremia, various observers differing as to the relative importance of each. Age, sex, time of day, posture, exercise, altitude, baths, and various other factors as well as disease, cause variations.

Bachmann, in an elaborate study, emphasizes the existence of a direct relationship between hemoglobin and viscosity which he terms the hemoglobin-viscosity quotient; this, constant in health, may be markedly altered in disease. He points out that this quotient is lowered in pneumonia and epidemic meningitis, but raised in typhoid fever, and sees here a means of differential diagnosis. Leucocytosis and variations in blood pressure are without influence on it.

Jorns, in a more recent article, after giving a description of the method used by him in his investigations, asserts:

1. Viscosity varies directly with the hemoglobin content of the blood; in illustration of which he cites lowered values in hemoglobinemias, with a return towards normal as the anemia disappears.

2. It is raised by increased venosity, as seen in conditions leading to cyanosis and dyspnea, *e. g.*, mitral stenosis, pneumonia, emphysema.

3. High values are frequently to be noted in arteriosclerosis, and these may be lowered by prolonged iodid therapy, therein confirming the observation of Müller and Inada, that the beneficial effect of the iodids is due to a viscosity-reducing action. He neglects to state, however, that to this finding Determann takes exception.

4. The highest values are present in diabetic coma, the lowest in hydremia, such as occurs in nephritis with anasarca.

Jorns, after setting forth his data, wisely refrains from sweeping inductions allowing his readers to interpret them, and to accept them for what they are worth.

The study of the viscosity of the blood is recent, the method of determination easy, and intelligent observations along the lines indicated in the papers here cited, may possibly serve to make this new method a valuable addition to our resources.

THE CONTAGION AND TREATMENT OF LEPROSY

Much has been said recently in the newspapers regarding the case of the alleged leper, John R. Early, who was sequestered for some months at Washington and later appeared before a medical society in New York, where he was pronounced by a well-known physician to be not a victim of the disease. The question seems to be still unsettled, as a recent report states that Early has been declared leprous by a special committee of the New York Society of Medical Jurisprudence. The Washington health authorities still hold to their former view, while, according to some accounts, the government has accepted the opinion of the New York specialist and stopped the man's pension.

There is hardly any disease the suspicion of which can so induce popular panic as leprosy. The accepted opinion of its incurability, the historical and traditional reputation of the disorder and its repulsiveness have been sufficient to account for this fear, and to a certain extent to justify it. The recent resolutions of the British and British colonial delegates to the conference on leprosy, held in Bergen, Norway, in August last,[1] support in a measure the popular views of its contagiousness, though they do not justify some of the measures which have been taken against it in certain quarters. They point out that an interval of years may elapse

1. Nature, November 18; and abstracted in Society Proceedings in THE JOURNAL, October 2, 1909, p. 1124.

between an infection and the first appearance of the disease, a fact which is itself rather suggestive of terrifying possibilities to timid persons. It must be admitted also that, according to the report of Brinckerhoff, the disease may even be on the increase in Hawaii. Against this, however, we have the fact that the leprosy germ does not seem to be particularly viable outside of the human body, and cases of known contagion in other than tropical and subtropical countries are at most very rare. The scattered Scandinavian lepers in Wisconsin and Minnesota do not appear to be foci of contagion, and there is no extensive evidence of its spread in Nova Scotia and Norway, where it has long existed. Though it was common in Europe after the Crusades, it almost entirely died out without any scientific treatment whatever. While it cannot be said that there is any racial immunity, the Orientals, including the Malay and Mongol races, appear to be most liable to the infection. It is probable also that the nervous form of leprosy will be found, as certain South African specialists have declared, much less contagious than the tubercular form. Occasional imported lepers are found in our northern cities mingling with the general population without restraint, but investigations by the Public Health and Marine-Hospital Service have not disclosed any authentic cases of contagion.

We have lately had reason to question the absolute incurability of leprosy, and can see some grounds for the belief that its malignancy is largely dependent on environmental and hygienic conditions. Apparent cures have been reported by competent dermatologists even in the semitropical State of Louisiana. The important question yet to be determined, and the one demanding most thorough study, is the manner in which the disease is transmitted, and much is to be expected in this direction from the experimental station in Molokai. The settlement of this question will afford a definite basis for effective prophylaxis and much of the fear of the disease at present held will be allayed. While leprosy is a disorder that is eminently one for compulsory notification, and humane isolation is not yet to be abandoned, these do not require the sacrifice of the dictates of common humanity.

THE NAMING OF DISEASES

The many objections to eponyms in scientific literature gain force in the case of new names for old diseases. An illustration of this is the naming of the so-called Krompecher tumors. Krompecher[1] wrote an original article on basal-cell carcinoma which is a valuable study of the subject. The basal-cell tumors, however, are among the oldest of the recognized lesions of the skin. Histologically, they are the so-called tubular epitheliomas, growing in strings between the connective-tissue bundles of the corium. Clinically, they have been known from time immemorial as "rodent ulcers," "Jacob's ulcers," "ulcus exedens," etc. All of these names, including "Krompecher tumor," are confusing and should be dropped for "basal-cell epithelioma," except that it seems almost a desecration to ancient medicine to change a name so old and hoary as "rodent ulcer." To substitute the name "Krompecher tumor" is like changing the name of the River Jordan to "Van Dyke's River," for instance, because Van Dyke has lately written entertainingly on it.

Of course, the eponym is often a necessary evil. When such a name must be used, care should be taken to use the correct one; that is, the name which bestows credit on the original investigator. Too often this point is overlooked, and credit withheld and bestowed without regard to the merits of the case.

At a recent medical meeting, for instance, one of the topics was "sporotrichosis beurmanii." In 1898, sporotrichosis was first described by Schenck[2] in Baltimore, who recognized the disease-producing organism as a sporothrix and established its pathogenicity. Two years later Hektoen and Perkins[3] in Chicago described the second case, confirmed the findings of Schenck, and with fairness and propriety gave the name of *Sporothrix schenckii* to the pathogenic micro-organism. The claims of these three authors to priority are beyond question; their work was complete, scientific, and published in accessible literature. Now, three years after Hektoen and Perkins, and five years after Schenck described the disease and its organism, De Beurmann[4] and his associates find the same organism in the same disease in France and appropriate the discovery for their own. There are no grounds for making any distinction between the organism described by De Beurmann and his colleagues and that described by Schenck, Hektoen and Perkins, and yet the disease is being described the world over, even in America, as "sporotrichosis beurmanii." There is a well known half-jest that an American painter can sell his paintings to better advantage in America when he is living in Paris. Sometimes one feels that the same sort of advantage belongs to scientific work done in Europe.

The case of sporotrichosis schenckii is merely a flagrant and recent illustration of the careless and unjust practice of ignoring the work of a discoverer or prior investigator for that of a later student; but unfortunately many similar instances could be given. The naming of angioneurotic edema is one. That, as we all know, is constantly called "Quincke's edema." Quincke[5] wrote of it in 1882, but Bannister[6] had described it and recognized its character two years before. If this edema is to bear any man's name, it should bear Bannister's.

In a recent paper[7] on the treatment of nevi and other cutaneous lesions, the author states, after large experi-

1. Krompecher: Beitr. z. path. Anat. u. z. allg. Path., 1900, xxviii, 1.
2. Schenck: Johns Hopkins Bull., 1898, p. 286.
3. Hektoen and Perkins: Jour. Exper. Med., 1900, v, 77.
4. De Beurmann: Ann. de dermat. et de syph., 1903, p. 678.
5. Quincke: Monatsh. f. Dermat., 1882.
6. Bannister: Chicago Med. Rev., June 20, 1880.
7. Lancet, London, Dec. 4, 1909.

ence with various methods, that no other method for the treatment of nevi compares with the use of solidified carbon dioxid, which he looks on as "the most important addition to the list of physical agents employed in therapeutics since that of radium." He gives credit for the method which he esteems so highly to Geyser, not to Pusey, who introduced it.

Of course questions of priority and credit are of minor importance; but, for the sake of their own scientific standing, investigators should be scrupulously careful to give due credit to their predecessors and should avoid the inaccuracy and injustice of giving to one man the credit for another's work.

THE ANNUAL AUTOMOBILE NUMBER

In planning the fourth Automobile Number of THE JOURNAL for our issue of April 9, we recognize that the attitude of the physician toward the motor car is no longer one of hesitation and doubt, but that the automobile has been classed as a part of the physician's equipment, to be procured if his business will warrant it. A careful physician buys an automobile either because, after careful contemplation, he figures that the automobile as a business investment will bring him in sufficient revenue to justify its purchase, or else because he knows that he can afford it as a luxury and feels that he is entitled to introduce a little more pleasure into his busy life.

Automobiles have settled down to a fairly definite standardization. Perhaps one of our correspondents does not put it too strongly who says: "There was no car made in 1909 so poor as the best ones of 1906." A corollary of this remark would be the statement that the automobile of to-day cannot be judged by the performances of a model several years old. This remark is not intended to disparage the remarkable performances of some old machines which run year after year with satisfaction to their owners.

We look forward to the fourth Automobile Number with confidence in the cooperation of our readers, as in previous years. Those who are willing to contribute are requested to notify us at once, preferably designating some particular phase of the subject which they will take up. Manuscripts, which may contain from 200 to 800 words, should reach us during February, but the notification should be sent us immediately in order that space may be reserved.

As to photographs, we desire that they should be of as interesting a character as possible. They should be clear and distinct in order to reproduce well, and it will add to their interest if, like many of the pictures previously printed, they contain something besides the automobile itself. We shall be particularly glad of articles and photographs illustrating various improvements devised by physicians, arrangements for housing the automobile, caring for it, or repairing it—devices which may be taken advantage of by other practitioners. We shall also welcome criticisms and suggestions that may aid us in our endeavor to make this fourth Automobile Number the best ever issued and one to be read by the general practitioner with pleasure and profit.

IMPROVED OUTLOOK FOR CANAL SANITATION

During the past three months two important matters connected with the administration of the Sanitary Department of the Canal Zone have been discussed editorially in THE JOURNAL. The first was a bill introduced into Congress by Hon. James R. Mann, of Illinois, modifying the present method of government of the Canal Zone; the other was the suspension of the publication of the monthly bulletin issued by the sanitary department. We are glad to say that both of these matters have been satisfactorily adjusted. THE JOURNAL discussed editorially, December 11, the work of the sanitary department and the value, to public health officers and sanitarians, of the bulletin issued by Colonel Gorgas. Some criticisms were also made regarding the action of the chief engineer in ordering the discontinuance of the bulletin. It is a great pleasure to announce that the publication and distribution of this bulletin have been resumed by order of Secretary of War Dickinson. This action on the part of Mr. Dickinson is most commendable and insures to the scientific world and to laborers in all branches of sanitary work the continued receipt of this bulletin containing the latest details regarding sanitary methods and results in the Canal Zone. On November 27 attention was directed editorially to a bill introduced by Mr. Mann (H. R. 12316; S. 601) providing for the government of the Canal Zone by a board of one director, one chief engineer and one governor. This bill was criticised because, either intentionally or otherwise, it subordinated the sanitary department to the engineering and construction department. Mr. Mann, on having his attention called to this point, replied: "It is not possible to have good government on the zone with a lot of different heads." Admitting this proposition, THE JOURNAL pointed out editorially that Mr. Mann's bill, instead of providing for a single head, provided for three and that the responsibility of administration could be lodged in a single director without subordinating the sanitary department to any other department. It is with great satisfaction that we learn of the amendment of Mr. Mann's bill by substituting a single director for the triple board, thus placing all the departments on the same level and equally subordinate to a single administrative head. The bill as it now stands appears to be satisfactory so far as this point is concerned, and its passage will not cripple the sanitary department. THE JOURNAL congratulates Mr. Mann on the marked improvement made in his bill.

QUACKERY AND FELONY

In the prosecution of advertising quacks one of the difficulties in the way of securing a conviction is the tendency of a lay jury to look at the action brought as a species of persecution skilfully engineered by the ethical members of the medical profession. This tendency is, of course, encouraged by the quack and used for all it is

worth and he assumes the pose of a martyr to professional jealousy. Human nature is so constituted that, while it looks on the commission of a misdemeanor with leniency, it views a felony with unequivocal disfavor. The case recorded in the Pharmacology department of this issue is a case in point. The individual prosecuted was charged, not with practicing medicine without a license, but with obtaining money under false pretenses. Here there was no opportunity to assume the rôle of injured innocence. The "gold-brick" swindler caught red-handed could as consistently cry "persecution" as could a physician who had taken money for making a fake diagnosis and pretending to "cure" the condition thus "diagnosed." The eminently sensible ruling of the court, in the case here referred to, that physicians should be permitted to testify as to certain conditions as matters of fact rather than merely as matters of opinion, will, if sustained by the higher courts, do much to render the quack's cry of persecution flat, stale and unprofitable. The important point in connection with this case, however, is that under such charges the prisoner becomes but a common felon and on a par with the ordinary porch-climber or sneak-thief. While the layman may experience some difficulty in recognizing the danger of quackery *per se*, he finds no such obstacle in a case of plain robbery. The average man is perfectly willing to play fast and loose with his health, but he objects to any such harsh treatment of his purse. Let the public once realize that quackery and robbery are usually synonymous, and the outcome of legal action instituted against quacks may be safely predicted.

Medical News

ARIZONA

Burned Hospital Rebuilt.—Whitwell Hospital and Sanitarium, Tucson, which was destroyed by fire December 29, last, has been rebuilt and reopened. The new structure is fireproof and is provided with outside villas for the use of patients suffering from asthmatic and pulmonary affections. The hospital was originally built in 1907 by Mrs. W. S. Whitwell, New York City, in memory of Mr. William Scollay Whitwell. The hospital maintains one free bed. Dr. Hobart P. Shattuck is resident physician.

CALIFORNIA

Bequest to College.—Cooper Medical College, San Francisco, has received a bequest of $5,000 by the will of the late Mrs. Myrick.

Beriberi at Alviso.—Five cases of beriberi are reported by the State Board of Health at Alviso among Chinese and Japanese laborers.

Sale of Red Cross Stamps.—At the final meeting of the Red Cross Christmas Stamp Committee, held in San Francisco January 12, the treasurer's report showed a sale to date of 700,000 stamps with many sales not yet reported.

Cornerstone Laid.—The cornerstone of the Kaspare Cohn Hospital, Los Angeles, was laid recently, with appropriate ceremonies. The hospital is to cost $50,000, of which more than $30,000 has already been collected or subscribed.

New Sanitarium.—Hot Springs Sanitarium is to be established at Calistoga, to cost $100,000, with the following directors: Drs. Stanley Stilman and Rufus L. Rigdon, San Francisco, William G. Downing, Suisun, Frank G. Newton, St. Helena, and Mr. J. T. York, Napa.

Physicians' Club Organized.—The Physicians' Club of Redlands was organized December 16, and the following officers were elected: President, Dr. Charles E. Ide; vice-president, Dr. John L. Avery; secretary-treasurer, Dr. H. Hamilton Forline, and directors, Drs. Walter B. Power and Thomas M. Blythe.

Personal.—Dr. Jacques Loeb of the University of California has been appointed head of the department of experimental biology in the Rockefeller Institute for Medical Research, New York City.——Dr. Chauncey H. Wilder, East Oakland, has been appointed district surgeon of the Southern Pacific Railroad.——Dr. Arthur H. Reinstein, assistant surgeon at the Veterans' Home, Yountville, has been appointed a member of the staff of the Southern Pacific Railroad Hospital, San Francisco. At a farewell reception held in Dr. Reinstein's honor, the veterans presented him with a gold watch and fob, a leather hand-painted sofa pillow and $100 in cash.——Dr. Ernest Dozier, San Francisco, has been appointed bacteriologist and pathologist to the Napa State Hospital.

CONNECTICUT

Loving Cup to Dr. Fuller.—At the annual meeting of Hartford County Medical Society, January 3, the loving cup of the society which is held by its oldest member, and which was so held by the late Dr. Gordon W. Russell for twenty-two years, was presented to Dr. Horace S. Fuller.

Health Officials to Meet.—The fifth conference of health officials of the state will be held in Lampson Hall, Yale University, New Haven, February 8 and 9. At the evening session February 8, Dr. Charles Wardell Stiles, U. S. P. H. and M.-H. Service, will be the principal speaker, and the morning session, February 9, will be devoted to the discussion of the milk supply of the state.

Personal.—Dr. George E. Ober has been elected president of the Bridgeport Board of Health.——Dr. Arthur D. Variell has been elected president of the Waterbury Board of Health.——Dr. David J. Molumphy, Hartford, has been appointed medical inspector by the board of health.——Dr. Alfred S. Wadler, New Haven, has returned from Europe.——Dr. Everett J. McKnight, Hartford, and William H. Carmalt, New Haven, have been appointed by the board of directors of the state prison, to act at the prison under the requirements of the sterilization law recently passed by the general assembly.——Dr. Seth Hill, Stepney, has retired from practice.

DELAWARE

Personal.—Dr. Edward S. Dwight, Smyrna, has been appointed antituberculosis commissioner, vice Henry Ridgely, Dover, resigned.——Dr. Samuel G. Elbert, Wilmington, was seriously injured recently in a collision between his carriage and a street car.

State Board Appointees.—Drs. Presley S. Downs, Dover, and Henry W. Briggs, Wilmington, have been appointed members of the State Medical Examining Board, and Drs. Edwin S. Anderson, Dover, and Abram E. Frantz, Wilmington, members of the homeopathic board.

Hospital Notes.—The new Physicians and Surgeons Hospital, Wilmington, was opened for inspection December 20. The governor of the state delivered the opening address.——A public dispensary open to the indigent poor, suffering from tuberculosis, has been opened in Georgetown, under the auspices of the local antituberculosis society.

GEORGIA

Personal.—Dr. William L. Gilbert has been elected president, and Dr. Willard E. Quillian vice-president, of the Atlanta board of health.——Dr. William R. Googe has been elected mayor of Abbeville. His opponent was Dr. T. R. Moye.——The offices of Drs. Thomas M. Hall and J. H. Shirley, Milledgeville, were damaged by fire, December 28, to the extent of about $3,000.——Dr. Charles T. Nolan, Marietta, has been appointed a member of the State Board of Medical Examiners, vice Dr. Edwin R. Anthony, Griffin, term expired.

The Tuberculosis Fight.—At the first meeting of the newly appointed board of trustees of the Georgia State Sanatorium, Dr. William C. Jarnagin, Atlanta, was elected member of the executive committee, finance and auditing committee, and the committee on farms and outside business; Dr. Thomas R. Wright, Augusta, chairman of the committee on sanitary, medical and dispensary service, and Dr. Nicholas Peterson, Tifton, a member of that committee and of the committee on farm and outside business.——At the first annual meeting of the Georgia Antituberculosis Sanitary Society, held in Atlanta January 17, Dr. Robert P. Izlar, Waycross, was elected third vice-president; Dr. William C. Pumpelly, Macon, secretary-treasurer, and Drs. Craig Barrow, Savannah, Rufus R. Kime, Atlanta, and Thomas J. McArthur, Cordele, members of the executive committee.

ILLINOIS

Cook County Budget.—The Cook County budget for the fiscal year 1910 shows an increase of $307,829.41 as compared with the appropriation of the previous year. The new Oak Forest infirmary is to receive $111,309.42, the Dunning Institutions, $389,622.76, and Cook County Hospital $473,500.70.

Consumptive Hospital Overcrowded.—The new tuberculosis hospital on the grounds of Cook County Hospital is overcrowded with patients. Several have had to be turned away and sent to the municipal lodging hospital and thence to the Dunning Hospital, and 20 tuberculosis patients have been placed in another department of the hospital because of the overcrowded condition.

Personal.—Dr. Rachael Watkins has been temporarily appointed assistant physician at the Peoria State Hospital. ——Dr. Warren E. Taylor, superintendent of the Watertown State Hospital, is said to have resigned and Dr. William A. Crooks to have been named acting superintendent.——Dr. and Mrs. Harry C. Hill and family, Streator, have started for Europe.——Dr. George H. Brannon, Manhattan, has recovered from his recent operation at St. Joseph's Hospital, Joliet, and returned home.——Dr. Vaclav H. Podstata, superintendent of the Elgin State Hospital, has resigned, to take effect March 1.

Hospital Needs of Cook County.—The president of the Board of Commissioners of Cook County, in his annual message, notes an increase of 31 per cent. in the admissions to Cook County Hospital between 1903 and 1908, and an increase of 56 per cent. in the daily average population. During 1909 there was an increase of 11 per cent. over 1908 in the daily population, or of 73 per cent. over 1903. He advises the adoption of comprehensive hospital plans, including the rebuilding of the old portion of the present hospital so as to accommodate 2,500 patients, this to be done gradually so as to interfere as little as possible with the existing hospital provisions.

Chicago

Passed Resolutions.—The Council of the Chicago Medical Society, January 10, adopted the following:

WHEREAS, the Chicago Medical Society is an integral part of a constituent society of the American Medical Association, and therefore vitally interested in the welfare of that great organization, and

WHEREAS, certain conditions exist which menace the best interests of the members of the American Medical Association, and of the profession at large; therefore, be it

Resolved, that the Chicago Medical Society in council assembled recommends the following changes in the policies and management of the American Medical Association, viz.:

1. The laws should be so amended that no one person will be permitted to hold, at the same time, more than one executive or honorary office in the Association.
2. The office of General Secretary, and the positions of Editor and Manager should be separated, and no person should be permitted to fill more than one of these places at one time.
3. The offices of Editor and Secretary should be filled only by men educated in regular scientific medicine and of unimpeachable professional records.
4. The number of Trustees should be increased.
5. All officers and employees whose duties involve financial responsibility should be bonded.
6. The laws governing admission to membership in the American Medical Association should be so amended as to make it mandatory on the secretary to enroll applicants who have complied with the provisions and the by-laws governing the same.
7. Space should be set apart in THE JOURNAL for free and courteous discussion of the policies and methods of the Association, or for any other matters which may appeal to the membership at large as bearing on the interests of the Association.
8. Provision should be made for the initiative and referendum.
9. No member should be expelled from the Association without a fair trial and full hearing.
10. No person who is a general officer or member of the House of Delegates or Board of Trustees or employee of the American Medical Association should be eligible to serve as a general officer or member of the House of Delegates, or Council, of any constituent Association.
11. *Be it further resolved*, That the Secretary of the Chicago Medical Society be instructed to publish these resolutions in full in the *Bulletin* of the Society, and to transmit a copy of the same to THE JOURNAL of the American Medical Association and to the editors of the various state journals.

The above were adopted by the following vote: *Ayes.*—Gehrmann, Noble, Bell, Kling, J. C. Stubbs, Albro, Senn, Fischkin, O'Byrne, Fantus, Whalen, Leigh, Hogan, Moore, Nagel, Scott, Humiston, Harvey, Pence, Betz, J. E. Stubbs, Lydston, Tansey, Ferguson, Corwin, Van Derslice, Cotton. *Nays.*—Hess, Weaver, Churchill, Harris, Balderston, Abt, Green, Lanner, Harpole, Paddock, Norcross, Robbins, W. A. Pusey, Gillmore, Kuh, Woodruff, B. Pusey, Beck, *Absent.*—Walls, Preble, Favill, Belfield, Ryan, Tuteur, Porter, Kaufman, Dawson, Baum.

INDIANA

Charge Against Physician Dismissed.—On the motion of the prosecuting witness in the case of Dr. James K. Moss, Ashboro, before the State Board of Medical Examination and Registration, January 12, the charge of prescribing illegally for the sale of liquor was dismissed without prejudice.

Medical Society Meetings.—At the annual meeting of the Hammond Medical Society, held January 4, Dr. William F. Howat was elected president; Dr. Francis H. Fox, vice-president; Dr. H. J. White, secretary; Drs. William D. Weis, Eleanor L. Scull, and Thomas W. Oberlin, censors.——At the annual meeting of Goshen Medical Society, January 7, Dr. Herbert K. Lemon was elected president; Dr. Charles L. Dreese, vice-president; Dr. Henry W. Eby, secretary; Dr. William B. Kreider, treasurer, and Dr. S. W. Walters, censor. The post-graduate course of study, which was so successfully carried on last year, is to be continued during 1910.

Personal.—Dr. Charles A. Carter, Indianapolis, has been appointed chief clerk in the department of statistics of the State Board of Health.——Dr. and Mrs. Henry O. Bruggeman, Fort Wayne, have sailed for Europe.——Dr. Charles W. Slick, Mishawaka, has been reappointed a member of the board of trustees of the Longcliff Hospital for the Insane.——Dr. William G. Wegner, South Bend, has been appointed commissioner of health of St. Joseph county.——Dr. Charles L. Thomas, Logansport, who was seriously injured in an automobile accident in Chicago, recently, is reported to be improving at St. Luke's Hospital in that city.——Dr. J. Lucius Gray, Laporte, has succeeded Dr. John W. Snyder, Michigan City, as secretary of the Laporte County Board of Health.——Dr. Felix W. Hazelwood, New Albany, is reported to be seriously ill with septicemia.——Dr. Henry Moore, Rockville, has resigned his position on the State Tuberculosis Hospital Commission because of physical disability and has gone to Florida to recuperate.——Dr. V. A. Magenheimer, Mooresville, is reported to be seriously ill with spinal meningitis.——Dr. Royal H. Gerard, Crawfordsville, has been elected supreme chief of the Tribe of Ben Hur.——Dr. William B. Richmond has been elected a member of the health board of Terre Haute, vice Dr. Frank A. Tabor, resigned, and Dr. Moorhead has been named as secretary of the board.

KANSAS

Personal.—Dr. Walton J. Mitchell, Wichita, has been reelected physician of Sedgwick county.——Drs. J. Albert Fulton, Hugh Wilkinson, and Lot D. Mabie have been appointed members of the board of health of Kansas City.

Conference of Health Officers.—The sixth annual conference of state, county, and municipal health officers was held in Topeka December 8. At this meeting the Kansas State Association of Public Health Officers was organized, with the following temporary officers: President, Dr. E. C. Reynolds, Iola; vice-president, Dr. Clayton F. Ralls, Winfield; secretary, Dr. John J. Sippy, Belle Plaine; and treasurer, Dr. C. Granville Edgerton, Ness City.

Society Meetings.—At the annual meeting of Douglas County Medical Society, held in Lawrence, January 11, Dr. Marvin T. Sudler was elected president; Dr. George W. Jones, Lawrence, vice-president, and delegate to the state society; Dr. Harry L. Chambers, Lawrence, secretary, and D. E. Smith, treasurer.——At the annual meeting of Riley County Medical Association, held in Manhattan, the following officers were elected: Dr. James D. Colt, president; Dr. J. Carroll Montgomery, vice-president; Dr. B. Belle Little, secretary; Dr. Edwin J. Moffit, treasurer; Drs. Charles F. Little and Lewis J. Lyman, delegates to the state society, all of Manhattan. ——Bourbon County Medical Society held its sixth annual meeting and banquet at Fort Scott, and elected Dr. Charles A. Van Velzer, Fort Scott, president; Dr. J. B. Cummings, vice-president; Dr. John D. Hunter, Fort Scott, secretary; Dr. Charles F. Harrar, Fort Scott, treasurer; and Dr. Winfield S. Miller, Fort Scott, censor.——Cherokee County Medical Society, at its annual meeting, held in Galena, elected Dr. Harry H. Brookhart, Scammon, president; Dr. Lee, Baxter Springs, vice-president; Dr. Claude R. Loudermilk, Galena, secretary, and Dr. Charles T. Reid, Carona, censor.——Cowley County Medical Society held its annual meeting at Arkansas City and elected Dr. Otis B. Wyant, Winfield, president; Dr. Charles Dunning, Arkansas City, vice-president, and Dr. Francis M. Wilmer, Winfield, treasurer.

KENTUCKY

To Enforce Anti-Spitting Law.—The Board of Public Safety, Louisville, issued orders January 18 that policemen in plain clothes and detectives be detailed to enforce the ordinance prohibiting spitting on the streets.

Acquitted.—Dr. Edgar W. Stokes, Louisville, who was on trial on the charge of conspiracy in attempting to defraud the Louisville Railway Company in a personal injury suit, was promptly acquitted by a jury January 11.

Needs New Hospital.—An urgent appeal to the board of directors of the Louisville Commercial Club to take up the

matter of securing a new city hospital was made in a recent address by Dr. Henry E. Tuley, director of the club. Resolutions recommending the appointment of a non-partisan hospital commission were adopted at a meeting of the Jefferson County Medical Society, and a committee of five was appointed to urge the passage of an act providing for the securing of the hospital.

Personal.—Dr. William L. Nuttall, formerly superintendent of the State Institute for the Feeble-Minded Children, Frankfort, has been declared insane and committed to the State Hospital, Lakewood.——Dr. Haley P. Cartwright, Bowling Green, is reported to be seriously ill with heart disease.——Dr. Squire L. Helm, who has held that position for twenty-four years, has been reelected city physician of Lexington, and Drs. Walter O. Bullock and Joseph W. Pryor have been elected members of the board of health.——Dr. Alexius M. Forster assumed charge of the Kentucky Tuberculosis Association Sanatorium and the Tuberculosis Dispensary, January 7, and on its completion will be physician of the Waverly Hill Sanatorium.——Dr. Robert L. Bone, Madisonville, is reported to be critically ill with septicemia.——Dr. John B. Bowling, Perryville, fell on his veranda recently, sustaining a fracture of the hip, and is reported to be in a critical condition.——Dr. Alexander McKenney, Owensboro, was struck by a street car recently and severely injured.

MAINE

Society Meeting.—At the annual meeting of York County Medical Society, held in Saco, January 6, the following officers were elected: President, Dr. Clarence E. Thompson, Saco; vice-president, Dr. Fitz E. Small, Biddeford; secretary, Dr. Lester L. Powell, Saco; treasurer, Dr. Lawrence E. Willard, Saco; censors, Drs. Harry L. Prescott, Kennebunkport, Ernest L. Burnham, Sanford, and Paul S. Hill, Biddeford; and delegates to the state association, Drs. Jasper D. Cochrane, Saco, and Charles W. Blagden, Sanford.

Report of the Surgeon General.—In the annual report of Col. James B. O'Neil, Portland, surgeon-general, Maine National Guard, to the governor, he reports the following recommendations: That the hospital corps be furnished proper quarters for inspection and drill, and suitable individual lockers for clothing and equipment; that a modern ambulance be supplied; that at least two complete regimental infirmary outfits be at once obtained; that incinerators be installed at the state muster grounds; that the present system of kitchens and cookstoves be abolished and the camp cooking outfit of the regular establishment be substituted. During the year Captain John F. Hill, Waterville, resigned, and Dr. John G. Towne, Waterville, was appointed first lieutenant and assistant surgeon in his place.

MONTANA

Medical Society Election.—The Fergus County Medical Association, at its annual meeting in Lewistown, elected Dr. Abraham Poska, Philbrook, president; Dr. Charles C. Wallin, Lewistown, vice-president, and Dr. John T. Foley, Lewistown, secretary-treasurer.

Addition to Hospital.—The management of the Deaconess Hospital, Great Falls, has purchased three lots on Sixth avenue, opposite the hospital, on which they will build a two-story brick and stone structure 100 feet in length, which will be utilized as a home for the nurses of the institution.

Personal.—Dr. Crawford Johnston, Culbertson, has been appointed local surgeon for the Great Northern System.——Dr. John J. Mahoney, Missoula, has been appointed physician of Missoula county, vice Dr. George F. Turman, Missoula, resigned, and started for Europe.——Dr. Edgar C. Lee, Deer Lodge, has returned from Europe and resumed practice.

NEW HAMPSHIRE

Personal.—Dr. Edward D. Burt, Lincoln, recently underwent operation in a hospital in Boston.——Dr. Patrick J. McLaughlin has been appointed city physician and Dr. Albert F. Mulvanity, chairman, of the board of health of Nashua.

Money to Hospital.—By the will of Mrs. Isabel M. Fowler, of Little Boar's Head, the Margaret Pillsbury General Hospital, Concord, receives $15,000, the income of which is to be applied to providing hospital treatment for poor women and girls.

NEW JERSEY

Personal.—The board of health of Gloucester City organized January 10, and elected Dr. John K. Bennett, secretary-treasurer.——The board of health of Ocean City has reorganized with Dr. N. Howard Burt, president.——Dr. William F. Ridgway, Atlantic City, sailed from New York for England, January 15.

Hospital Staff Named.—The board of governors of the North Hudson Hospital has appointed the following medical staff for 1910: Consulting surgeon, Dr. Frank Gray, Jersey City; attending surgeons, Drs. Joseph M. Rector, Jersey City, Louis E. Poole, West Hoboken, Adam E. Fendrich, Weehauken, and John C. Farr, Hoboken; assistant surgeon, Dr. Edward B. Meisgeier, West Hoboken; consulting physicians, Drs. Egbert LeFevre, New York City, Eugene E. DeGrofft and Richard Schlemm, Weehauken; attending physicians, Drs. Leo H. Shenier, West New York, H. J. Spaulding, Weehauken, and William Meyer, West Hoboken; consulting neurologist, Dr. William J. Arlitz, Hoboken; consultant of disease of the lungs and heart, Dr. John Nevin, Jersey City, and anesthetist, Dr. Fred J. Quigley, Union.

Officers Elected.—The Gloucester County Medical Society elected the following officers at its annual meeting January 20: President, Dr. Cyrus B. Phillips, of Pitman; vice-president, Dr. J. Harris Underwood, Woodbury; secretary and treasurer, Dr. George E. Reading, Woodbury; reporter, Dr. Howard A. Wilson, Woodbury; censors, Drs. James Hunter, Jr., Westville, Luther M. Halsey, Williamstown and Harry A. Stout, Wenonah; and delegate to the state society, Dr. Charles S. Heritage, Glassboro.——At the annual meeting of Atlantic County Medical Society Dr. Edwin H. Harvey of Chelsea was elected president, Dr. Thomas G. Dunlap, Atlantic City, vice-president, Dr. Edward Guion, Atlantic City, secretary and treasurer, Dr. Theodore Senseman, Atlantic City, reporter, and Dr. Edward A. Reiley, censor.

NEW YORK

Personal.—Dr. J. Orley Strannahan has been reelected chairman of the board of health of Rome, and Dr. Charles R. Mahady has been reelected health officer.——A committee of the Amsterdam State Medical Society is making arrangements to celebrate the fiftieth anniversary of the practice of medicine in Amsterdam of Dr. Salphronius H. French.

Bills Before Legislature.—The Garfein bill requires every employer to provide insurance indemnity for the benefit of his employees. An employee whose salary is $2,000 a year or less, injured while at work, is to be entitled to a weekly compensation equal to the amount of his salary while incapacitated. If the injuries result in death, the next of kin are to be allowed to recover damages for the full amount of the insurance policy, which is not to be more than $20,000.—— The Hoey bill provides for a department of ambulance service for New York City, with a commission appointed by the Mayor at the head, instead of the present board of ambulance service consisting of the commissioner of police and charities and the president of the board of trustees of Bellevue and the Allied Hospitals.

Tuberculosis Notes.—The twenty-fifth anniversary of the Adirondack Cottage Sanatorium, Saranac Lake, will be held February 1. Twenty-five former patients who have been cured from tuberculosis will take part in the celebration.—— In the annual report of the superintendent of the State Tuberculosis Hospital, Ray Brook, he reports that no patient can be admitted until April 1. The inability of the state hospital to accommodate all who wish to gain admission is hastening the consideration of more adequate means of tuberculosis treatment in the various cities, towns and counties in the state, where many sanatoria are being built or are under consideration.——A bill has been introduced in the legislature providing for the establishment of a state hospital for the treatment of cases of intermediate and advanced pulmonary tuberculosis.——A committee having in charge the gathering of funds for the erection of a tuberculosis sanatorium in connection with Albany Hospital, has received subscriptions for $17,000 of the $30,000 required. The sanatorium is to be erected on the land recently deeded to the hospital by Howard Van Rensslear.

New York City

Loeb Goes to Rockefeller Institute.—A department of experimental biology has been organized in the Rockefeller Institute, and Dr. Jacques Loeb of the University of California has been elected its head.

Enlarge Sloane Maternity.—The trustees of Columbia University have filed plans for an annex to the Sloane Maternity Hospital. The new building will be eight stories and will harmonize with the design of the present edifice. The cost will be $120,000.

Montefiore Home to Move.—The trustees of this institution have purchased fourteen acres of land in the Bronx fronting on Gun Hill Road and extending to 210th street. It is

reported that $2,000,000 will be expended in improving the property. The hospital equipment planned will give accommodation for at least 600 patients.

Gifts to Hospitals.—The will of Darius Ogden Mills gives $100,000 to the Home for Incurables in this city and $25,000 to the American Red Cross.——Mrs. Helen Hartley Jenkins has given $25,000 to the Lying-in Hospital for a special study of puerperal fever. The fund is to be known as the Emma Hartley Endowment in memory of the donor's mother.

New Medical Society.—Physicians residing above One Hundred and Sixtieth street on Washington Heights have organized the Audubon Medical Society with the object of promoting scientific, professional and social relations. Dr. F. D. Uferrigan has been elected president; Dr. Roger H. Dennett, vice-president; Dr. W. H. Allison, secretary; Dr. Lynn L. Fulkerson, treasurer, and Dr. John N. Bassin, member of the scientific committee. At the meeting February 4, Dr. Benjamin T. Tilton will read a paper on "Acute Abdominal Emergencies."

New Quarters for Old College.—President Nicholas Murray Butler of Columbia University announces that within the past few weeks Columbia University has received gifts amounting to more than $1,000,000 for the purchase of the entire block between One Hundred and Sixteenth and One Hundred and Seventeenth streets and Amsterdam and Morningside avenues. The College of Physicians and Surgeons will be moved to this site. Part of the new medical school equipment will be a building devoted entirely to medical and surgical research in which cancer research can be carried on under the terms of the will of George Crocker. The estimated cost of this undertaking is $3,000,000. Large contributions have been received from William K. Vanderbilt, George J. Gould, Frank A. Munsey and an anonymous donor.

PENNSYLVANIA

Loving Cup Presented.—Dr. Francis A. Goeltz left Erie January 21, to take up his residence in Nyssa, Ore. On January 11 he was tendered a farewell dinner at the Erie Club by the staff of the Hamot Hospital, when he was presented with a silver loving-cup, suitably engraved, by the other members of the staff.

Decrease of Fatal Accidents in Mines.—In 1909, there was a marked decrease in the fatal accidents in the mines of the state as compared with 1908, the figures being 1,045 as compared with 1,250. The record of the year in the soft-coal region was 494 fatal accidents as compared with 572 in the preceding year, a decrease of 78, or 4 per cent. In the hard-coal region the decrease was more marked—in 1909, 551 fatalities against 678 in 1908.

Personal.—Dr. Charles Campbell, Petersburg, has been appointed division physician for the Pennsylvania System.——Dr. Harry F. Smith has been appointed police and fire surgeon of Scranton, vice Dr. Ernest L. A. Keisel, resigned.——Drs. James P. Gilligan, Maurice B. Ahlborn, Lawrence A. Sheridan and Edward R. Roderick have resigned from the staff of Mercy Hospital, Wilkes-Barre.——Dr. Charles P. Knapp has been elected president of the Wyoming Board of Health.——Dr. S. R. Molineux has been appointed assistant at the Robert Packer Hospital, Sayre.

The Flexner Portrait.—The permanent portrait committee of the Medical Department of the University of Pennsylvania reports that at present six professors are not represented in the collection of portraits of former professors of the medical school. A special appeal is made for contributions to secure the portrait of Dr. Simon Flexner, who was professor of pathology from 1899 to 1903. A special committee composed of these classes and of Dr. Flexner's associates and assistants has been appointed to institute such action as may be necessary to this end. Subscriptions should be sent to the treasurer, Dr. William Pepper, 1811 Spruce street, Philadelphia.

Medical Societies.—At the annual meeting of the Medical Society of Franklin County, the following officers were elected: President, Dr. John C. Gilland, Greencastle; vice-presidents, Drs. Frank N. Emmert, Chambersburg, and Thomas D. White, Orrstown; secretary, Dr. John J. Coffman, Scotland (reelected); assistant secretary, Dr. H. Clay Devilbliss, Chambersburg; treasurer, Dr. Johnston McLanahan, Chambersburg, and censor, Dr. Guy L. Zimmerman, Lemasters.——Physicians of Waverly, Sayre and Athens met in Sayre December 27 and took preliminary steps toward effecting a permanent organization to be known as the Valley Academy of Medicine. The following temporary officers were elected: President, Dr. John T. Holcomb, Athens; secretary, Dr. Marcus C. Hunter, Sayre, and treasurer, Dr. Leon S. Betowski, Waverly.——Allegheny County Medical Society, at its annual meeting, held in Pittsburg, January 12, elected the following officers: Dr. Markley C. Cameron, Pittsburg, president; Drs. James I. Johnston, Pittsburg, William K. Walker, Dixmont, Edward M. Hand, Coraopolis, and David C. Boyce, Pittsburg, vice-presidents, and Dr. William B. Ewing, Pittsburg, secretary-treasurer.

Philadelphia

Bequests.—The will of the late Matthew Corr bequeaths $5,000 each to St. Joseph's, St. Mary's and St. Agnes' hospitals to endow beds.——The will of the late Elizabeth P. Watson directs that her whole estate ($50,000) be held in trust for her sister, Ellen, and at her death that $5,000 each be given to the Home of the Merciful Saviour for Crippled Children, the Germantown Dispensary and Philadelphia Home for Incurables.

Spitzka Misquoted.—Dr. Edward A. Spitzka, professor of anatomy in Jefferson Medical College, states that an erroneous impression has been conveyed by the public reports concerning his recent address before the Clerical Brotherhood. He does not believe that physicians should put suffering persons to death, and does not in any way favor the delegating to any physician the right to administer lethal doses in any case. The physician's duty is to preserve life whenever possible, though he may attempt to relieve extreme suffering by proper methods.

Library for County Society.—At the meeting of the County Medical Society held January 19, it was announced that the society had decided to establish a medical library for the use of its younger members. The library committee was authorized to contract with the Free Library of Philadelphia for the reservation of alcoves in the different branches throughout the city for medical books and publications. These works are to be selected by a committee composed of Drs. James M. Anders, M. Howard Fussell, Herman Allen and Edward E. Montgomery. An initial appropriation of $300 was made by the society for the purchase of books and journals.

University Assumes Control of Phipps Institute.—Some weeks ago, Henry Phipps announced the gift of $500,000 for the erection of a new building, to be used by the Phipps Institute (for the study and prevention of tuberculosis), and to be managed by the University of Pennsylvania at its completion. Provost C. C. Harrison of the University has announced a change of plan whereby the University will assume control at once and has appointed the following committee of physicians connected with the University Medical School to arrange for the reorganization of the Institute: Drs. Charles H. Frazier, John H. Musser, David L. Edsall, Alexander C. Abbott and Provost Harrison, ex officio.

Personal.—Dr. Joseph Price is seriously ill at his country home at Whitford, near West Chester with nervous breakdown complicated by blood poisoning.——Dr. John C. DaCosta is dangerously ill with acute congestion of the lungs.——Dr. Frank A. Craig was appointed physician in charge of the Tuberculosis class of the Presbyterian Hospital, January 18.——Dr. Mary M. Wolfe, who is now in charge of the Stonyhurst Sanitarium, Honesburg, and who served as assistant physician at the State Hospital for the Insane, Norristown, from 1899 to 1901, and chief resident physician in the woman's department of the same institution until October, 1909, has been appointed clinical professor of psychiatry in the Woman's Medical College of Philadelphia.——Dr. James K. Young has been elected associate professor of orthopedic surgery in the University of Pennsylvania.——Dr. John M. Swan has been elected associate professor of clinical medicine in the Medico-Chirurgical College.——Dr. Harry Hudson has been made associate in orthopedic surgery in Jefferson Medical College.——J. Percy Keating, son of the late William V. Keating, has been elected a member of the board of trustees of Jefferson Medical College.

Officers Elected.—The seventeenth annual meeting of the Medical Club of Philadelphia was held January 21. The following officers were elected: President, Dr. James B. Walker; vice-presidents, Drs. William L. Rodman and Dr. S. Lewis Ziegler; and treasurer, Dr. Lewis H. Adler, Jr.——At the annual meeting of the Northwestern Medical Society, the following officers were elected: President, Dr. J. William Pancoast; vice-president, Dr. Nathan G. Ward; secretary, Dr. Harry Hudson; treasurer, Dr. William McKeage; and censors, Drs. Samuel M. Wilson, Lewis S. Somers and J. Edward Wallis.——The Section on General Medicine of the College of Physicians, at its annual meeting, January 10, elected Dr. John C. DaCosta, Jr., chairman, and Dr. Clifford B. Farr, clerk.——The following officers were elected and inducted at the annual meeting of the Philadelphia County Medical Society, January 19: President, Dr. Henry Leffman; vice-

presidents, Drs. William S. Newcomet and G. Morton Illman; associate vice-presidents: North branch, Dr. Samuel Wolfe; South branch, Dr. R. Oliver Kevin; West Philadelphia branch, Dr. Christian B. Longenecker; Kensington branch, Dr. John J. Gilbride; North East branch, Dr. Elmer E. Keiser; and Germantown branch, Dr. Frank B. Gummey; secretary, Dr. William S. Wray; assistant secretary, Dr. Alexander R. Craig; treasurer, Dr. Collier L. Bower; censor, Dr. Judson Daland; delegates to the United States Pharmacopeia convention: Drs. Henry W. Cattell and Edward W. Watson, and Drs. Albert M. Eaton, Edward Q. Thornton and Martha Tracy, alternates.——The West branch of the Philadelphia County Medical Society, at its annual meeting, December 24, elected Dr. Henry D. Jump president and Dr. Charles A. E. Codman, clerk.——The Philadelphia Medical Examiners' Association, at its meeting, January 4, elected the following officers: Dr. Samuel E. Walker, president; Dr. Samuel H. Brown, vice-president; Dr. Norris S. McDowell, secretary; Dr. George D. Morton, treasurer; and Drs. Walter C. Stillwell, Robert W. Bruce, and Joseph D. Farrar, censors.

FOREIGN

Clinic for Occupational Affections.—A clinic for occupational affections is maintained by Milan, Italy, with assistance from private subscriptions, mainly from manufacturers. Persons with occupational affections are sent to this clinic from all parts of Italy, and ample laboratory and other arrangements are made for forty graduate students, so that physicians are able to make a special study of this important and hitherto comparatively neglected branch of medicine. The clinic has three pavilions, with accommodations for about 90 patients besides an isolation ward for occupational infectious diseases. A library of works relating to occupational affections is also being collected, and a hall is set apart for the meetings of the international commission for study of occupational affections, which has its permanent seat in Milan, and in which seventeen states are represented. The Berlin *Zeitschrift für ärztliche Fortbildung* in a recent issue speaks enviously of this new Italian clinic, urging the erection in Germany of an institution of the kind for graduate research in internal and surgical occupational affections and industrial accident cases.

Congress on Occupational Affections.—The second International Congress for Occupational Affections is to be held at Brussels, Sept. 10-14, 1910. Membership is open to all persons and corporations interested in industrial and occupational affections and prophylaxis. Six topics have been appointed for discussion: 1. Is it possible to classify occupational affections and industrial accidents separately? 2. Medical aspect of occupational affections, prophylaxis and hygiene. 3. Campaign against hookworm disease. 4. The eye and the illumination in respect to occupational affections. 5. Caisson work. 6. Occupational poisoning. The articles on these and other subjects should be in the hands of the secretary before May 31; address Ministère de l'Industrie et du Travail, Rue Lambermont 2, Brussels, Belgium. The first congress of the kind was held at Rome last spring. It brought out in striking fashion the evils of the workmen's compensation legislation in Germany, which is engendering incurable neuroses after industrial accidents. The profession no longer calls them "traumatic neuroses" but "industrial legislation neuroses."

Leprosy in Colombia.—Dr. P. G. Medina, professor of hygiene and physiology at the medical school at Bogota, Colombia, was commissioned by the government to ascertain the number of lepers in the country and study the best means of treatment, and his report has just been published after four years of assiduous research. He states that the general impression in regard to the vast number of lepers in Colombia is grossly exaggerated. He found a total of 3,031 lepers in the three state leper colonies and only 1,275 outside, most of whom will soon be admitted to a new colony now being established. His report appears in the recently founded *Repertorio de Medicina y Cirugia*, published at Bogota, and he describes the effects of the various therapeutic measures that have been tried. The Carrasquilla antileprosy serum sometimes induces a marked febrile reaction with chills, headache and sweating, and in the cases in which this was observed, notable improvement followed and has persisted to date. No effect was apparent in the cases in which this pronounced reaction did not occur. Arrangements are being made to continue this serotherapy on a larger scale. The 120 patients to whom it has been already applied are anxious to continue it, but the benefit from chaulmoogra oil is more constant and seems to be permanent. In a number of cases of the tubercular type, the lesions have retrogressed and if the improvement which has persisted for a year continues to be evident the patients may be regarded as permanently cured.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Jan. 15, 1910.

Establishment of a Radium Bank in London

The prohibitive price of radium has led to the establishment of a novel institution—a radium bank where the precious metal may be stored and rented to physicians, scientists and others who wish to use it but cannot afford to pay $80 a milligram, its present market price. The ultimate locality of the bank is to be in the neighborhood of Cavendish Square, in the heart of the district in which the London consultants live, but for the present temporary offices have been opened at Moorgate street in the heart of the commercial and banking district of the city. For an average operation 50 milligrams of radium are required, costing $4,000 and therefore it is only at one or two of the London hospitals that radium can be used to any extent. A number of business men have combined to form the bank which will "let" 100 milligrams at $200 for one day's use and for each subsequent day at ½ per cent. on the value of the amount issued. Securities will have to be given. The bank purposes to stock radium to the value of $250,000. The difficulty is in getting a supply of radium. The main source has been the pitch-blende from Joachimsthal, Bohemia, which yields one part in 3,000,000. A new supply has been discovered in the bed of a stream near Guarda in Portugal. In England two Cornish mines have yielded a little but the whole available supply is limited owing to the enormous expense of extraction. Although radium exists in air, sea water and almost everywhere, there is hardly an ounce of the pure metal in the world. The bank will be organized very much after the model of a similar institution in Paris, through which most of the radium used in England has hitherto come.

Successful Heart Massage in Chloroform Syncope

Dr. V. B. Orr has reported at the Royal Society of Medicine a successful case of heart massage in chloroform syncope. A patient was about to be operated on for gastric trouble when the heart failed. The surgeon, Mr. Charles Stonham, opened the abdomen and massaged the heart from below the diaphragm about three or four minutes after the failure. In response to the stimulation the pulsations returned and the patient recovered. Another case was mentioned by Dr. E. H. Starling in which a weakly child, aged 11 months, required needling for cataract. Chloroform was given from a Junker's inhaler and was well taken. When the child was under, the head was slightly raised to adjust the towels, and both pulse and respiration ceased. The head was lowered and artificial respiration performed, while ether and strychnin were administered hypodermically and warm saline solution was injected into the rectum. Fingers were passed under the ribs and the heart was compressed five or six times. A gasping inspiration was taken and the heart was heard to beat again, after which recovery gradually took place. The best results—ten successful cases—have now been recorded from the subdiaphragmatic method of heart massage.

Physicians in Politics

The general election which begins to-day is the most important which has taken place in the last two generations because of the magnitude of the issues involved—the supremacy of the peers or the people and taxation of imported necessaries of life in a country dependent for its very existence on its foreign trade. Unlike his French confrère, the physician here plays very little part in politics. For those in practice it is considered unwise to take a public part because it tends to offend patients or possible patients on the opposite side. But no such restraint applies to those who do not practice or who have retired from practice. The training and occupation of the physician, however, does not help him to become an active politician. As a rule, unlike that of the lawyers who play a very large part in politics, he is a poor speaker. If he aspires to enter parliament he must be wealthy to a degree seldom attained in the profession. He must have enough money to live on, pay a large part of his election expenses and subscribe to the various charities and clubs of his constituency. Going back as far as the reign of Queen Elizabeth the total number of physicians who have sat in parliament seems to have been only about 60. Very few were men of eminence in their profession. Exceptions are the celebrated John Radcliffe, the founder of the Radcliffe Library at Oxford, who sat in the reign of William and Mary. John Friend, a fellow of the Royal Society and a censor of the Royal College of Physicians, sat in the reign of George I

Later in the reign of William IV came Thomas Wakeley, the founder of the *Lancet*, an ardent political reformer. Among men of eminence in the profession who have sat at the present day are the late Sir Michael Foster, the physiologist, and Sir William Priestley the gynecologist. In the parliament which has just dissolved sat Sir William Collins, the ophthalmologist, and Sir Walter Foster, once professor of medicine in Birmingham and a well-known medical writer. The last two with Sir A. R. Simpson, the former professor of midwifery at the University of Edinburgh, and Dr. Addison, professor of anatomy at St. Bartholomew's Hospital, are the most eminent physicians who are candidates for the next parliament. Altogether there are 24 medical candidates—16 in England, 4 in Scotland and 4 in Ireland. Of these 5 have never been practitioners and after qualifying abandoned medicine for some other career. The profession has never shone in parliament. It has never produced a great speaker or statesman of the first rank. The medical members are simply ordinary units though they are listened to with attention when any topic with medical bearings is under discussion. On the other hand the legal profession is represented out of all proportion to its importance. The present prime minister and most of his important colleagues including the chancellor of the exchequer and the secretary for war belong to it. Several times the idea has been put forward that the medical profession should be represented specially in parliament but this has never proved practicable. The medical members there do not represent it as such but, like other members, one party, liberal or conservative. As physicians are scattered all over the country and individually exercise very little influence in politics it is difficult to see how they can ever have a special representation. One of the candidates for the Harley street and Cavendish Square district of London, however, is Dr. R. O. Moon, a fellow of the College of Physicians. He has probably been brought forward with view to secure the votes of the numerous physicians in that locality, but these are but a small fraction of the whole.

Sleeping Sickness in Uganda

The report of Sir Hesketh Bell, the governor of Uganda, on the measures adopted for the suppression of sleeping sickness, is very unfavorable to Koch's atoxyl treatment. At first it seemed to be efficient but later it produced blindness to such an alarming extent that its use had to be considerably restricted. All that can be claimed for the drug treatment is that in a great number of cases it prolonged life and relieved suffering; but no case of undoubted cure can be produced among all the thousands of patients treated.

Rat-Bite Fever

Under the title of rat-bite fever Dr. Horder, of St. Bartholomew's Hospital, has reported in the *Quarterly Journal of Medicine* 3 cases of a previously undescribed disease. All the cases presented the following points in common. A bite from a rat is sustained which may or may not suppurate. After an incubation period, in 2 cases of 28 days and in the other case of a few days less lymphangitis of the tissues about the bite with malaise, anorexia, and fever supervene. At the same time erythematous indurated patches appear irregularly distributed over the skin and diffuse tender swellings in the muscles. The attack may last from a few days to a week. A series of similar attacks follow at regular intervals sometimes for several months. The intervals vary from 3 to 10 days. Blood examination for microbes was negative but leucocytosis was present during the fever. Spontaneous recovery ensues and no treatment has proved of value. Dr. Horder suggests that the infective agent is a protozoon.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Jan. 7, 1910.

A New University

The bill organizing the schools of higher instruction of Algiers into a university (THE JOURNAL, Sept. 4, 1909, liii, 807), has just been passed. The school (*école*) of the practice of medicine and pharmacy of Algiers is thus transformed into a college (*faculté*) of medicine and pharmacy. The bill, however, aroused lively objection, the present condition of the future university of Algiers hardly appearing to justify this transformation. Thus, so far as the school of medicine is concerned especially, official statistics show 125 students on January 15, 1909, but in reality it is necessary to deduct from this number 25 students who are taking the midwives' course and as many native auxiliary physicians. There are, therefore, far from the number of 250 pupils generally considered necessary for the transformation of a school into a college in order to assure emulation and the maintenance of a proper level of scholarship. In other respects the school of Algiers is hardly more satisfactory. There are few professorships; there is no clinic of mental medicine. The hospital of Mustapha is insufficient, containing only 40 beds for men and 20 for women for each of the services of clinical medicine and surgery. Considerable expense, then, will be required, quite out of proportion to the utility of the project.

During the discussion of the bill M. Peytral, senator from the department of the Bouches-du-Rhône, suggested the transformation of the Marseilles school of practice of medicine into a college. This school occupies a singular situation. It is part of the University of Aix-en-Provence, which is the seat of the colleges of law and of letters. For a long time Marseilles, possessing a college of sciences and a school of medicine, has demanded the transfer thither of the colleges of Aix. To-day this movement tends to be less pronounced, but Marseilles would like at least to transform her school of medicine into a college. It should be recognized that this transformation would be much better justified than that of the school of Algiers. The Marseilles medical school has in fact grown considerably. It has at the present almost as many medical students as the college of Montpellier or that of Toulouse, and even more than there are at Lille or Nancy. It has, moreover, 33 professorships, among which there are some for unique subjects, dealing with the diseases of tropical countries; for the port of Marseilles receives more colonial patients than any other French port. The hospitals of Marseilles contain more than 1,000 beds and furnish a large number of anatomic subjects. The city of Marseilles annually expends $30,000 (150,000 francs), for the support of the medical school, which is well equipped and installed in a splendid building, the Château of Pharo, which belonged to Napoleon III and which the Empress Eugénie gave to the city.

Exclusion of a Medical Student for an Attack on a Professor

During an examination a Paris medical student assaulted Dr. Prenant, professor of histology. The council of the University of Paris has just excluded this student forever from all the colleges and schools of higher instruction.

Legislation in Regard to the Labor of Women and Children

M. Viviani, Minister of Labor, has just submitted for the signature of the President of the Republic a decree restricting the weight of the burdens which may be carried or drawn by children under 18 and women of all ages employed in industry and commerce. This decree will effectively repress the abuses observed in numerous factories where, without regard to the age of the children employed or the strength of the women, they are constantly obliged to draw or to carry burdens of considerable weight. Hereafter a boy under 14 may carry no more than 22 pounds (10 kilos); from 14 to 15, no more than 33 pounds (15 kilos); for girls or women the limits are, under 14 years, 11 pounds; from 14 to 15 years, 17½ pounds; from 16 to 17 years, 22 pounds; 18 years and up, 55 pounds (25 kilos). The use of wheelbarrows and push-carts is forbidden to boys less than 14 and to girls under 18. It is forbidden to allow women to carry, push or drag any burden whatever during the three weeks following confinement.

Reform of the Thesis Requirement for the Doctorate

The commission for the reform of medical studies has been debating the question of the suppression of the thesis for the doctorate for a long time. A bare majority was in favor of the thesis; but the assembly of the medical schools recognized that the suppression of the thesis would be impossible, for the law permits only doctors whose theses have been accepted to practice medicine. Moreover, the maintenance of the equality of the doctorate in medicine with the corresponding degree given by the other schools—the very dignity of the medical profession—demands the preservation of the thesis. There was little doubt on the first point.

The second question, however, was whether it would be possible to require theses without compelling all the graduates to go to the expense of printing. This question brought forward a very interesting and original suggestion from Dr. Regaud, *agrégé* at the Lyons medical school, which was finally approved. Among the theses for the doctorate there are some very remarkable ones which contribute greatly to the reputation of our schools. There are some, on the other hand, which are so inferior that it is really a pity to let them go out to represent French medicine in foreign collections. Unfortunately, it is impossible to refuse these theses, even the worst of them, for they always represent a pecuniary expense which one would hesitate to compel the student (or rather his family) to repeat, and then, many such authors are not sufficiently accustomed to the expression of their thoughts to pro-

duce a creditable work. According to Dr. Regaud's plan, the candidate would produce a thesis, of which he would have several copies made in typewriting, and which would be sustained and passed on, but only the theses receiving the mention "very good" would be admitted into the collection of the printed theses of the school. It goes without saying that the rights of the doctors whose theses had been received in manuscript, and those whose theses had been printed, would be the same. All would have the same prerogatives; only the latter would be laureates of the school and the others would not. Against this plan the objection was urged that to lay the authors of the best theses under additional expense would be an odd way to reward them; but it is probable that most of the young physicians would be proud to receive the honor and would willingly stand the expense attached thereto. Moreover, the thesis fees might be raised a little and a sufficient sum subtracted to make up a number of thesis purses to be given to those for whom the expense would be a burden; or those candidates who would have to have their theses printed might be excused from the thesis fees.

May a Hospital Physician Call a Surgeon from Another City Without Authorization of the Hospital Board?

Some time ago a case arose in Loupe (Eure-et-Loir) in which a hospital physician, without previously consulting the board, called a surgeon from another city to perform an operation on an injured working man. The court of appeals, to which the case was carried, has decided that, considering that the hospital was not provided with surgical equipment, or with suitable means of antisepsis for operations, that consequently in a delicate and urgent case the interests of the patient required the summoning of a specialist surgeon, and that the amount asked by this surgeon for his fee and expenses was not excessive, the administrative board of the hospital should assume the expense, since the hospital is by law obliged to give to injured patients all the attentions that their condition requires.

Responsibility of the Nurses' Agencies

There are in Paris several agencies which undertake to procure nurses for patients. The question has just come before the courts whether, if a nurse sustains an accident in the performance of his duties, the agency which has placed him in the position is responsible for this accident. The courts have decided that the agency is not subject to the law in regard to accidents of labor, as there can be no contract of labor between the agency and the nurse; the agency simply plays the part of an employment bureau and the nurse is not under its surveillance when he is in attendance on a patient, to whom, moreover, the nurse is free not to go. It seems to follow from these decisions that in case the nurse placed through an agency should be capable of any indiscretion, it would be impossible for the patient to hold the agency legally responsible.

BERLIN LETTER

(From Our Regular Correspondent)

BERLIN, January 6, 1910.

Personals

Three of the older representatives of German medical science are celebrating jubilees: Professor Hegar, a noted gynecologist, formerly director of the Freiburg clinic, celebrates his eightieth birthday; Professor Bernhard Schultze, formerly director of the Jena gynecologic clinic, the fiftieth anniversary of his doctorate; and Professor Kehrer, formerly chief of the Heidelberg clinic for women, the semicentennial of his doctorate. The first named particularly shows still great intellectual activity. He not only carries on his *Archives* but now and then publishes a contribution of his own to clinical gynecology.

Professor Henkel, the gynecologist of Greifswald, has been chosen as director of the Jena clinic as successor of Professor Franz, who has been called to Kiel, and Professor Jung, the gynecologist of Erlanger, has been chosen as head of the Göttingen clinic as successor of Professor Runge. In place of Professor Doutrelepont, retired, Prof. E. Hoffmann of Halle has assumed the direction of the skin clinic at Bonn.

Congress on Internal Medicine

This year's congress on internal medicine (the twenty-seventh), which is to be attended by foreign physicians, will meet April 18 to 21 at Wiesbaden under the presidency of the Berlin clinician, Professor Kraus. The following are now listed as subjects for discussion: 1. The Specific Diagnosis and Treatment of Tuberculosis. The leaders of the discussion are to be Professor Schütz of the veterinary school of Berlin and Professor Benzoldt of Erlangen. 2. The Origin and Treatment of Secondary Anemias. This will be presented in a paper by Professor Gerhardt of Basel.

Increase of German Students

The entire number of students in the twenty-one universities of the German Empire in the summer semester of 1909 amounted to 51,500. In 1879 the number was 19,771, an increase of 160 per cent. in thirty years. The number of foreign students has risen in these thirty years from 1,232 to 3,972. There are now 78.4 students for 100,000 inhabitants against 43.4 thirty years ago. In the last summer semester there were 7,250 law students, thirty years ago, 3,179; 4,879 medical students; in 1879, 2,061; 920 dental; in 1879, 17. Calculated on the basis of 10,000 inhabitants the number of law students has risen from 12.3 to 19.5, the medical students from 8 to 13.3 and the number of students of other departments has increased to a greater or less extent with the exception of Protestant theology in which there has been a regression from 5.9 to 5.6.

Premiums for Breast Nursing

The introduction of premiums for breast nursing has had the effect of inducing mothers to nurse their own children and has exercised a favorable influence on the nutrition of infants. Wiesbaden has appropriated since April 1, 1909, about $600 (2,500 marks) for this purpose. The number of mothers who nurse their own children is not small (amounting to 70 per cent.) but the period of nursing is insufficient. The efforts of the lately established mothers' counsel stations in Wiesbaden are directed to prolonging this period. For this purpose the nursing premiums are raised from month to month, a constant stimulus being thus maintained to keep women from neglecting nursing. This has resulted in sixty-four women who formerly nursed their children from two to three months prolonging the period from eight to twelve months. From April 1, 1909, until now 139 women have been assisted by nursing premiums. Of these forty-two had not previously nursed their children.

Insurance for Age and Disability for 1908

According to the facts just published the insurance for age and disability furnished about 184,000,000 weekly contributions. During the year 140,000 pensions were granted, 117,000 for disability, 12,000 for sickness and 11,000 on account of age with an average annual amount of from $40 to $50 (163 to 170 marks). For the treatment of disease about $4,500,000 (18,000,000 marks) were expended; for the care of the disabled $205,000. The expenses of management amounted to $4,500,000. The entire income for the year 1908 amounted to $58,000,000, the expenses $37,000,000, so that there was an accumulation of about $21,000,000. The assets of the insurance societies amounted to $375,000,000, to which must be added the book value of the inventories, amounting to about $1,500,000.

Extraordinary Memory of the Feeble Minded

In a late number of the *Journal for School Hygiene* (*Zeitschrift für Schul-Gesundheitspflege*) a Munich physician, Dr. Weigl, publishes some interesting facts about the astonishing feats of memory of mentally defective children. In the Vienna Society for Psychiatry and Neurology a feeble-minded boy was presented who knew the calendar for a thousand years so thoroughly that he could name every past and future date to the year two thousand, and every feast day, immediately and without deliberation. He could give no explanation of the mechanism of his performance. If he was asked by what method he found the day of the week for any date he repeated one of the formulas existing for it which he had learned from a calendar. It was easy to perceive, however, that he himself made no use of this formula. His knowledge of the calendar always seems to stop abruptly with the year two thousand. It must be assumed that the boy depends on material which he has thoroughly learned.

An analogous case is furnished by the well-known Salzburg calculator, a cretin of high grade who lived until 1853 in Salzburg, and could perform the most complicated calculations in his head with incredible celerity. A Warsaw physician reports the case of a twenty-two year old idiot whose brain was affected since his seventh year in consequence of a severe typhoid, who, although he could neither read nor write, reckoned with extraordinary quickness, e. g., multiplied figures of two places as soon as asked. From an English asylum there comes a report of an idiot who knew many hundred dates from English history, especially the dates of the births and deaths of noted men. Psychologists have not yet succeeded in explaining all these phenomena.

Pharmacology

DR. TAYLOR & CO.

An Advertising "Specialist" Convicted of Obtaining Money by False Pretense

A most important trial and subsequent conviction has just been concluded in San Francisco; it is the first case in the United States in which an advertising "specialist" has been convicted by a jury of the crime of trying to obtain money by false pretense. The man, John J. Arberry, a graduate of the medical department of the University of Kentucky, 1891, and licensed to practice medicine in California in 1895 (before the examining board was established), was arrested in July, 1909, the trial being held this month—January, 1910.

Dr. Arberry was the "chief consulting physician" in a widely advertised concern known as "Dr. Taylor & Co.," a corporation, the principal stockholder of which, Dr. Arberry testified on the stand, is one O. C. Joslen, who formerly had a license to practice, which license was revoked in 1905, after a conviction in the U. S. Court for sending immoral literature through the mail; the literature was an offer to produce an abortion. Several other advertising concerns are largely owned by the same Joslen, but they are operated by very shrewd licensed physicians and their advertising is generally so worded that they cannot be reached under the law. It was for this reason that the present case, along an entirely new line, was undertaken and supported by the San Francisco County Medical Society.

A young man of about twenty came to San Francisco from the country about the middle of July; on July 19 he felt a pain in his back and, seeing the sign of Dr. Taylor & Co., went into the office. He saw Dr. Arberry, who told him, after massaging his prostate, that he had an abscess of the prostate and it would require $200 to cure it. Arberry persuaded the young man to sign a letter to his aunt living in the country, asking that the money be sent to him, care of Dr. Taylor & Co. The money was received and paid. On July 23, Arberry, evidently thinking it a shame not to get some more "easy money," wrote a letter to the young man's aunt telling her to come to San Francisco, that the boy had another serious complaint. She came and first went to see some friends and fellow countrymen (Italians). One of her friends went with her to see Arberry, representing herself as her cousin and interpreter and alleging that she could not speak English—though she really speaks and understands it well. Arberry said to them that the young man had a valvular lesion of the heart and was liable to drop dead at any moment unless treated and cured, which would cost another $200; the treatment was expensive because he had to use a German serum, imported at great expense. The woman stated to Arberry that she did not have the money with her, but would go out and try and get it. That afternoon Arberry was arrested.

Before the heart disease episode and the arrest, the young man happened to see a reputable physician and a member of the county society who soon satisfied himself that the patient did not have and never had had an abscess of the prostate. The same day that the aunt and the interpreter were to see Arberry, the young man was examined by three reputable physicians, one examining the prostate and the other two the heart; they all agreed that he was perfectly well and free from the diseases stated. It was the old swindle, but the interesting and important part of it came out in the trial.

All such cases heretofore have failed because of the defense that the "doctor" had made a mistake in diagnosis and that all physicians may disagree in such matters. But the attorney for the society, Mr. Walter Kaufman, who, though not a criminal lawyer, took a deep interest in the case, believed in the common-sense idea that physicians might testify to certain conditions as matters of fact within their knowledge and not merely as matters of opinion. There was much argument over this point, but the court finally ruled that a witness under oath could testify to matters of fact and that it was then up to the jury to determine the reliability of the tesimony. On this basis the witnesses for the prosecution testified that they had examined the boy and that they knew as a matter of fact that he did not have and had not recently had an abscess of the prostate, and further, that he did not have and had not had a valvular disease of the heart; in the latter point even the "experts" called by the defense agreed that it could be determined as a matter of known fact, whether or not the boy had a valvular disease of the heart. The case went to the jury January 13, and after about two hours' deliberation they returned a verdict of guilty.

This is the first verdict convicting a physician who follows this criminal line of activity, of a felony; that is, of attempting to obtain money by false pretense. It is stated that the advertising quacks in San Francisco have contributed a purse of $25,000 to fight this case and it will undoubtedly be appealed to the Supreme Court. It is also the first time a trial court has admitted to the record testimony from physicians as to the condition of an individual as a matter of known fact and not merely as a matter of opinion. If the judgment shall be eventually sustained it will go far toward getting rid of the very worst type of quack—the licensed physician who has gone wrong.

THE AMERICAN DRUGGISTS SYNDICATE

The following letter from a prominent pharmaceutical manufacturing firm and our reply thereto are printed for the information of those who may be interested:

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To the Editor: Will you send us one hundred copies of the article on the American Druggists Syndicate noted on page 221 of THE JOURNAL, January 15? Kindly send them with bill and oblige.

—

Gentlemen: As we endeavored to make clear in the comment on Dr. Robinson's letter, the American Druggists Syndicate matter was reprinted especially for the use of the individual physician. THE JOURNAL takes the attitude that the A. D. S.—as at present operated—is vicious because of its method in manufacturing and exploiting nostrums, *and for no other reason.* For THE JOURNAL to sell to one manufacturing concern reprints of an article criticising another firm in the same line of business would be justly a subject for criticism, this too in spite of the fact that the concern making the request might be of the highest standing and actuated by the most altruistic of motives.

In plain English, THE JOURNAL holds no brief for any manufacturer—reputable or otherwise—whose business may be injured by the activities of the American Druggists Syndicate.

This being so we are sorry to say that we cannot fill your order.

Correspondence

A Classified Index to Medical Literature

To the Editor:—Readers of THE JOURNAL may be interested in and some of them might like to take advantage of the plan of the library of the Morgan County Medical Society for furnishing a classified index to current medical literature.

This plan differs from the exhaustive alphabetic index to medical literature published semiannually by THE JOURNAL in that the card form is of great advantage in its expansive and cumulative features which, with its classification by subjects, make it much more accessible for immediate reference. For several years this library has taken thirty of the leading medical journals published in the English language, including all the great weeklies, and has carefully indexed the original articles and clinical notes according to the Dewey system. At first, this was done for the benefit of the members of the Morgan County Medical Society, but others became interested and copies of the index have been made and sold to several neighboring societies. In order to do this work, it has been necessary for the library to employ a trained librarian with headquarters in the library (in the Carnegie Library Building) and ready at all times to assist members and others in using the library and especially to prepare for members reference lists on any subject desired.

The additional copies of this card index amounting to nearly 10,000 cards annually have been furnished at a cost of $125 a year, simply enough to cover the expense. Recently the library has had inquiries from a number of other societies and libraries, who would like to have the index, but the expense is too great. In canvassing this matter, with a printing house it appears that if we could secure fifty or sixty subscribers to the index, we could furnish it (not including the guide-cards which cost two cents each) for about one-half the cost, that is, for $60 a year, or $5 a month. If any of your readers would like to have such an index to recent current medical literature, we would be very glad to have their names and if fifty subscribers can be secured we will undertake the furnishing of this index at $60 a year. It will probably comprise about 10,000 cards arranged with class numbers and by authors so that any subject can be found in its proper class and alphabetically under the name of its author. We find practically that very few things in medical progress fail to get into these journals in the course of the year and while there are some which would come to hand more promptly from foreign journals direct, even these are soon accessible to the reader through the medium of this group of leading medical journals.

As this is a work carried on by the library entirely in the interest of the practitioner for the purpose of enabling him always to be abreast of the times, we take the liberty of making an appeal through the columns of THE JOURNAL. This plan is based on the fact that ready access to the best medical journal literature is the surest and simplest way for the practitioner to follow medical progress. We would greatly appreciate correspondence with those interested in a good fresh up-to-date card index.

LIBRARY OF THE MORGAN COUNTY MEDICAL SOCIETY, Jacksonville, Ill.

Miscellany

Origin and Prevalence of Typhoid in District of Columbia.—Rosenau, Lumsden and Kastle, in their third report on typhoid fever in the District of Columbia (*Hygienic Laboratory Bulletin* No. 52, Public Health and Marine-Hospital Service) gives the results of epidemiologic investigations in elaborate tables and charts and also the results of an intensive study of the problem in a selected yet typical district of thirty-two city blocks containing 5,300 persons. During the typhoid season, from May 1 to November 1, every case reported was visited and bacteriological examinations made of the filtered and unfiltered Potomac water, of the excreta, etc. No cases of clinical typhoid were found which had not been diagnosed and reported as such. Dr. L. O. Howard, of the Bureau of Entomology, made a study of fly abundance in relation to the prevalence of typhoid, and but little connection between the typhoid germ and the fly as its disseminator could be made out. The city water supply during the typhoid season according to bacteriologic standards was of good quality, and in the opinion of the investigators could have been responsible for only an insignificant part of the infection. The evidence more strongly suggests personal contact and infected milk as the greatest factors, and in order to further reduce the incidence of typhoid in the District close attention will have to be given these. The solution of the typhoid problem and its suppression will depend on accurate knowledge gained by special studies in endemic areas, rather than by the necessarily hurried studies of acute outbreaks. Though they believe that practically every case of typhoid in the District is diagnosed and reported to the health officer, they deplore the fact that physicians do not fully avail themselves of the facilities of the Hygienic Laboratory for making blood cultures and bacteriologic examinations of the excreta. In about 90 per cent. of patients in the first week of the fever the blood culture test will reveal the typhoid bacillus, usually in pure culture. The intensive study of a selected district included full histories of all cases of illness, specimens from suspected cases of illness and from healthy persons with the view of determining what proportion harbored the typhoid bacilli without having symptoms of the disease. Data were also collected in regard to sanitary conditions, water and milk supplies, etc. The figures show that only 15 per cent boiled the water, 54 per cent. used raw milk, 11 per cent. home heated, 7 per cent. commercially pasteurized, 11 per cent. used condensed milk, and 12 per cent. used milk rarely or not at all. Sixty-eight per cent. of houses were thoroughly screened and 89 per cent. showed a "good" condition as to cleanliness; 4.8 per cent. of the population gave a history of having had typhoid within the past ten years, and in 7 out of 80 specimens examined the *Bacillus typhosus* was found. One hundred and six of the cases were in children under 10 years of age, and this special prevalence among children again suggests the importance of milk and contact in its dissemination. The results of the examination of the excreta of about a thousand apparently healthy persons indicate that the typhoid bacillus is more commonly distributed than the actual number of clinically recognized cases suggests. The results of the three years' study show that the disinfection of excreta is frequently inefficient or neglected, and there is a need of legal control of typhoid fever patients and typhoid bacillus carriers. A vigorous campaign against typhoid as a "contagious" disease and for the prevention of the spread of milk infection would eliminate the greater part of typhoid from the District. Considering the general sanitary condition and the fact that there is no water-borne infection the typhoid fever rate in Washington is excessive.

The Evolution of Man and Its Control.—Roswell H. Johnson (*Popular Science Monthly*, January) says: Man has learned that it is not necessary to depend on natural selection alone for the betterment of the race, but that the work of changing the species is partially under his control. Artificial selection therefore steps in. Though various plans have been suggested, and even adopted in isolated instances, as in the Oneida community, we reach solid ground for the first time when we consider the prevention of breeding from the very worst. The prohibition of marriage within certain degrees of consanguinity is one method of artificial selection which is old as the Mosaic law. Modernly it has been attempted among criminals in our prisons, and in institutions of charity among the insane, the feeble-minded, the epileptic. Those afflicted with syphilis and deaf mutes should of course be excluded from propagation. Natural selection may be trusted to take care of mere weakness and susceptibility to bacterial diseases, and the list of the unfit must vary considerably with scientific advances. But the selection of a method to limit the propagation of the unfit must be governed by considerations of social welfare and individual happiness. The extreme methods of the lethal chamber and Plato's scheme of disposing of defective babies are not in consonance with the respect for life established by society. Castration is too severe for general application, but vasectomy by which sexuality is retained but sterility produced as is employed under statute in Indiana among criminals, though it will be opposed, has much in its favor. The most practical method under present conditions is celibate isolation, not in prisons but in island communities, which would combine effective eugenics with greater humanity and would accelerate social progress to a marvelous extent. Since characters resulting from outside forces, such as alcohol, excessive fatigue, lack of hygiene, scurvy, rickets and other evils of malnutrition can be inherited where the germ plasm itself is affected, much can be accomplished eugenically by the improvement of environment. Sexual selection is an active force in the betterment of the race. It is scarcely possible to attain the ideal working of sexual selection among the most fit. The decline of the birth rate is serious only as it is greatest among the most desirable class. Among the innately inferior the fewer children the better, and among the means of limiting families among them would be the abolishment of child labor and ceasing to treat as illegal the knowledge of the prevention of conception which would be employed more by them and decrease their fecundity and a more reasonable proportion of the fit would be established. The eugenic value of divorce might be employed by extending the grounds for

divorce to such things as indicate innate inferiority. But all these measures do not forget the deplorable decline of births among the most fit and efforts should be brought to bear on the enlightened class to recognize the rearing of children as a duty to the race. The eugenicist proposes that laws both state and federal make vital statistics more reliable and comprehensive, and that students of biology study more accurately human heredity according to the laws of Galton and Pearson.

The Food Supply of the Future.—H. P. Armsby (*Science*, Dec. 10), refers to the utterances of James J. Hill (*World's Work*) on the rapid increase in the population and the probable shortage of the wheat supply. He quotes Davenport to the effect that if the ratio of increase of the past hundred years is maintained the end of the present century will see the population of the United States twelve hundred million, and emphasizes the fact that agriculture must be enormously productive to feed them, and that it must be continuously so. No race has ever yet learned to feed itself except at the expense of the fertility of its own or some other country. But with the rapid occupation of all new lands, even in Africa, the problem must be mastered; otherwise there will not be enough of the better foods to go around, and the diet, which is almost uniform among all classes, in this country, at least, will have to be changed. Nature in producing food is wasteful of her energy. Sixty per cent. of the energy stored in the wheat crop, and about the same proportion in the corn crop, is in the straw and stover, and practically only 30 per cent. of the energy of the wheat crop is available for human nutrition. So that it will be necessary to utilize more completely the energy of the by-products in the production of available food. While the conversion of the grain into the higher-priced and more marketable products has been in the past and is to a degree still justifiable economically, nevertheless the conversion of corn or other grain into meat is an exceedingly wasteful process, and Jordan computes that in the production of beef or mutton only 2.66 per cent. of the digestible organic matter consumed by the animal is converted into human food, and even in pork it amounts to only 15.5 per cent. So that the economic pressure of population will sooner or later compel the use of corn as human food, or the land must be devoted to other crops which afford more available nutriment and simply use the by-products for the production of meat, which may eventually become a luxury for only the tables of the wealthy.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

FORMALDEHYDE POISONING

To the Editor:—In THE JOURNAL, Jan. 15, 1910, in the Department of Queries and Minor Notes, appeared an item on "Formaldehyde Poisoning." An article on this subject by Dr. John MacLachlan appeared in the October number of the *Cleveland Medical Journal*. In addition to Dr. MacLachlan's personal case he has collected from the literature ten others and has sketched the symptomatology of formaldehyde poisoning in more thorough fashion than has previously been done. E. F. CUSHING, Cleveland, Ohio.

ARTICLES ON HOSPITAL CONSTRUCTION

To the Editor:—I am desirous of obtaining some information concerning municipal hospitals with a view of starting one which will have a wing for contagious diseases. Can you refer me to any cities of about 75,000 which have them? Or can you give me any light on any phase of the subject? I suppose a campaign of education will be necessary here before we will be able to make the public see the need of such an investment and I want material for this campaign. B. VAN SWERINGEN, Fort Wayne, Ind.

ANSWER.—In THE JOURNAL, Feb. 20, 1909, p. 610, you will find an article by Sturm on "The Planning and Construction of Hospitals for Smaller Cities and Towns," which gives plans and discusses construction, materials, etc. Other articles on hospital construction are found in the issues of Sept. 21, 1907, p. 990 and 993, and March 28, 1908, p. 1025. The *British Medical Journal*, June 20, 1908 (hospital number), contains much information about hospitals, construction, management, taxation for hospitals, etc. This is briefly abstracted in THE JOURNAL, July 18, 1908, p. 261.

Among cities having municipal hospitals are Akron, Ohio, Allentown, Allegheny, Altoona, Harrisburg, Scranton and Williamsport, Pa., Binghamton, N. Y., Columbus, Ohio, Dubuque, Iowa, Omaha, Neb., Indianapolis, Ind., and Lexington, Ky. It is suggested that you might write the authorities in those cities for further information.

GONORRHEA THERAPY ACCORDING TO RICORD AND CHOPART

To the Editor:—On page 42 of "Libertinism and Marriage" (Jullien-Douglas), reference is made to "Chopart's Mixture," and on page 49 "Ricord's old receipt" is mentioned, both used in the treatment of gonorrhea. What are the formulas of these two prescriptions? B.

ANSWER.—The formula of Chopart's Potio Balsamica used for the purpose named is as follows:

℞	c.c.		
Syrupi Balsami tolutani			
Balsami copaivæ	āā 50		āā, fl.℥iss
Aquæ menthæ pip.	100	or	fl.℥iii
Spiritus (80 per cent.)	50		fl.℥iss
Spiritus aetheris nitrosi	5		fl.ℏiss

M. et Sig.—Teaspoonful 4 times a day.

Because the term "Ricord's old receipt" might be applied to many formulas of Ricord, several of those recorded in *Hager's Handbuch der Pharmaceutischen Praxis* are here given.

℞	gm. or c.c.		
Alumnis			
Acidi Tannici	āā 1		āā, gr. xv
Vini rubri		or	
Aquæ Rosæ	āā 100		āā, fl.℥iii

M. et Sig.: Use 3 times daily as an injection.

℞	gm. or c.c.		
Alumnis	15-45	or	gr. 225-675
Aquæ	100		fl.℥iii

M. et Sig.: Use as an injection (for vagina).

℞	gm. or c.c.		
Bismuthi subnitratis	15	or	gr. 225
Aquæ rosæ	200		fl.℥vi

M. et Sig.: Inject 3 times daily.

℞	gm. or c.c.		
Ferri pulverati	2		gr. iii
Iodi	4	or	gr. vj
Aquæ dest.	50		fl.ℏiss
Aquæ dest.	q.s.ad 300		fl.℥x

M. Prepare a solution of the first three and dilute to 300.
Sig.: Use 3 times daily as an injection in blennorrhea.

℞	gm. or c.c.		
Plumbi acetatis	2-3	or	fl.ʒss-i
Aquæ destillatæ	150		fl.℥v

M. et Sig.: Use as an injection.

READING FOR STUDENTS PREPARING TO STUDY MEDICINE

To the Editor:—What does the American Medical Association publish that would be of value and interest to students preparing for medicine? We have several such students and I am desirous of giving them reading matter relative to the profession.

THOMAS J. MACKIN,
Librarian to Evanston Academy, Northwestern University.

ANSWER.—The following publications and articles may be found of interest to the prospective medical student.

Principles of Medical Ethics of the American Medical Association.

Minot: Certain Ideals of Medical Education, THE JOURNAL, Aug. 14, 1909, p. 502. This issue is the Educational Number of THE JOURNAL, containing a description of each medical college in the United States and Canada and giving valuable information concerning courses, entrance requirements, etc.

Dock: Spelling as an Index to the Preparation of the Medical Student, THE JOURNAL, April 10, 1909, p. 1176.

Culler, Robert M.: Some Facts About the Army Medical Corps, THE JOURNAL, April 3, 1909, p. 1902.

Bristow: The Unity of the Medical Sciences, THE JOURNAL, March 13, 1909, p. 843.

Keen: Educational Ideals in Medicine, THE JOURNAL, June 26, 1909, p. 2081.

Adams: The Great American Fraud, The Nostrum Evil, Quacks and Quackery. Reprinted from *Collier's Weekly* by the American Medical Association.

A list of books on medicine from the historical point of view will be found in Queries and Minor Notes, THE JOURNAL, May 8, 1909, p. 1517.

We also mention the following books and some articles from other periodicals. If they are not accessible in a library, copies can be obtained from the publications or publishers named.

Lawbaugh: The Physician, his Duties and Relation to the Profession, *Journal of the Michigan State Medical Society*, Detroit, October, 1909.

The Practice of Medicine as a Career, The Army and Navy Medical Service (and a number of other articles of interest to the student), *Medical Record*, New York, April 24, 1909.

The Third Annual Report of the Carnegie Foundation, Washington, D. C., discusses medicine as a business, medicine as a profession, ideals of the profession, etc.

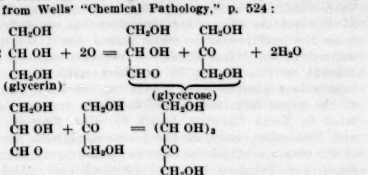
McWhorter: Relation of Medicine to Other Professions, *Alabama Med. Jour.*, Birmingham, May, 1909.

Cathell: The Physician Himself, The F. A. Davis Co., 1914 Cherry St., Philadelphia.

LABORATORY MANUFACTURE OF SUGAR FROM PROTEIN AND FATS

To the Editor:—Please tell me when and by whom sugar was first made from proteins and fats in the laboratory. I remember having read that it was done by Emil Fischer, but cannot find the reference. S. H.

ANSWER.—It is necessary to distinguish between the cleavage of a sugar radical out of a complex protein in which the sugar exists already formed, and a formation of sugar from a protein in which there is no preformed carbohydrate, since the principles involved and the significance of the operation for our understanding of carbohydrate metabolism, are entirely different. The demonstration of carbohydrate radicals in complex proteins is credited to Elchwald by Cohnheim and Mann ("Chemistry of the Proteids"); he discovered a carbohydrate in mucin in 1865. Many years before, however, Berzelius concluded that albumins must contain carbohydrate radicals because upon decomposition of proteins and sugars he obtained certain products in common from each, including oxalic and saccharic acids and furfurol. Recent activity in this direction dates from Pavy's discovery in 1894 that a hexose could be obtained from egg albumin. The formation of sugar directly from a protein which does not already contain preformed carbohydrates has never been accomplished in the laboratory, although there is clinical and experimental evidence in favor of the view that such a process may be accomplished by the living tissues. It is theoretically possible to construct a sugar from the amino acids derived from the disintegration of the protein molecule, some of which stand in rather close chemical relation to the carbohydrates, but the actual performance of the task of producing sugar by going through all the steps from protein to carbohydrate has never been recorded. Likewise, there is no record of an actual formation of sugar from a fat in the laboratory, although various of the necessary steps have been demonstrated. The glycerol (glycerin) radical of the fats is especially closely related to the sugars, and the reactions by which it may be converted into sugar are indicated by the following equations from Wells' "Chemical Pathology," p. 524:



Emil Fischer's synthesis of proteids was described in THE JOURNAL, March 3, 1906, page 656.

The Public Service

Medical Department of the Army

Changes for the week ended Jan. 22, 1910.

Hughes, Michael E., 1st lieut., M. R. C., ordered to Benicia Arsenal, Benicia, Cal., for duty.

Talbott, Edward M., capt., leave of absence extended 2 months.

Hughes, Michael E., 1st lieut., M. R. C., granted leave of absence to March 1, 1910.

Norris, H. C. R., 1st lieut., ordered to Fort Worden, Wash., for temporary duty.

Waterhouse, Samuel M., major, on expiration of his present leave of absence ordered to Fort Washington, Md., for duty.

Oliver, Robert T., examining and supervising dental surgeon, is designated to conduct an examination commencing Monday, March 7, 1910, at Fort Slocum, N. Y., of such applicants for employment as dental surgeons in the Army as may be authorized by the Surgeon-General of the Army to present themselves for examination.

Tetrault, Charles A., M. R. C., granted leave of absence for 4 months, to take effect on relief from duty in the Philippines Division, with permission to go beyond the sea.

Morris, Samuel J., capt., granted 30 days leave of absence.

Carter, Edward C., lieut. col., sick leave of absence further extended 1 month and 6 days.

Wickline, Wm. A., capt., granted 30 days' leave of absence.

Whitmore, Eugene R., capt., granted leave of absence for 4 months, to take effect on his relief from duty in the Philippines Division, with permission to go beyond the sea.

Coburn, Henry C., Jr., lieut., granted leave of absence for 28 days.

Kean, Jefferson R., lieut. col.; Russell, Frederick F., major, appointed members of a board of officers to proceed to Fort Sheridan, Ill., for the purpose of investigating the water supply and disposal of sewage at that post.

Reynolds, F. P., major, left Fort Monroe, Va., on 7 days' leave of absence.

Hanner, John W., capt, granted leave of absence for 1 month and 10 days.

Clayton, George R., 1st lieut., M. R. C., relieved from duty at Fort D. A. Russell, Wyo., and ordered to Fort Sheridan, Ill., for duty.

Thorne, James I., 1st lieut., M. R. C., honorably discharged from the service of the United States, to take effect Jan. 21, 1910.

Public Health and Marine-Hospital Service

Changes for the week ended Jan. 19, 1910:

Kerr, John W., asst. surgeon-general, reassigned to duty in the Bureau as Assistant Surgeon-General in charge of the Division of Scientific Research, effective Dec. 18, 1909.

Carmichael, D. A., surgeon, reassigned to duty at Buffalo, N. Y., effective Dec. 13, 1909.

White, Joseph H., surgeon, reassigned to duty at New Orleans, effective Dec. 1, 1909.

Lavinder, C. H., P. A. surgeon, detailed to represent the Service at the annual meeting of the Medical Society of New York, to be held in Albany, Jan. 25-26, 1910.

Earle, B. H., P. A. surgeon, leave of absence granted 15 days from Dec. 24, 1909, amended to read 2 days from Dec. 24, 1909.

Wood, C. E., asst.-surgeon, granted 21 days' leave of absence from Jan. 11, 1910.

Leake, James P., asst.-surgeon, granted 3 days' leave of absence from Jan. 12, 1910, on account of sickness.

Stiles, C. W., chief Division of Zoology, Hygienic Laboratory, detailed to represent the Service at a conference on hookworm disease, to be held in Atlanta, Ga., under the auspices of the State Board of Health, Jan. 18-19, 1910.

Bailey, C. A., acting asst.-surgeon, leave granted for 2 days from Jan. 3, 1910, amended to read 2 days from Jan. 1, 1910.

Blount, B. B., acting asst.-surgeon, granted 30 days' leave of absence from Feb. 1, 1910.

Delgado, J. M., acting asst.-surgeon, granted 2 days' extension of annual leave from Jan. 1, 1910, on account of sickness.

Gibson, L. P., acting asst.-surgeon, granted 4 days' leave of absence from Jan. 12, 1910.

Hunter, S. B., acting asst.-surgeon, granted 30 days' extension of annual leave from Dec. 1, 1909, on account of sickness.

Moorer, M. P., acting asst.-surgeon, granted 5 days' leave of absence from Jan. 15, 1910.

Onuf, B., acting asst.-surgeon, granted 5 days' extension of annual leave from January 6, 1910, on account of sickness.

Tarbell, B. C., acting asst.-surgeon, granted 30 days' extension of annual leave from Oct. 14, 1909, on account of sickness.

BOARD CONVENED

Board of medical officers convened to meet at the bureau, Jan. 24, 1910, for the examination of candidates for admission to the Service. Detail for the board: Surgeon G. B. Young, chairman; Surgeon Wm. G. Stimpson; Passed Assistant Surgeon John D. Long, recorder.

Society Proceedings

HOOKWORM CONFERENCE

First Southern Health Conference, held in Atlanta, Ga., Jan. 18-19, 1910

The first conference for the purpose of discussing the various aspects of uncinariasis was held in Atlanta, Ga., January 18 and 19, under the auspices of the Atlanta Chamber of Commerce and the Georgia State Board of Health. The conference was called to order by Mr. J. F. Paxton, president of the Atlanta Chamber of Commerce, who extended a hearty welcome to the delegates present, and said that the meeting was fraught with tremendous significance to the South.

Dr. H. F. Harris, secretary of the Georgia State Board of Health, was chosen temporary chairman and William Whitford, Chicago, official reporter for the conference, and representing THE JOURNAL of the American Medical Association, acted as temporary secretary, pending the formation of a permanent organization.

There were five hundred in attendance, representing eighteen states. Unusual interest was shown in the proceedings.

History and Zoologic Aspect of the Hookworm Disease

DR. CHARLES WARDELL STILES, Washington, D. C.: The earliest hookworms ever known were described in 1782 by a German clergyman—Goeze, who gave to them the German name *Haaken wurm*. A few years later, another German

scientist found numbers of the same group of parasites, and he Latinized the expression, using the term "uncinaria." In 1837, Dubini in performing an autopsy in Milan found in a cadaver a peculiar parasite with which he was not familiar. This parasite could not be traced among the parasites of man, and proved to be a new species, which he called "*Ankylostoma duodenale*." That was the first hookworm ever found in any human being, or, at least, ever described as having been found in any human being, and this hookworm is to-day known as the Old World hookworm. A few years later, however, it was noticed that this parasite was common in Egypt, and a parasite supposed to be the same was found in Brazil. In Brazil it was observed that this worm produced serious disease, and it is to the Brazilian physicians that we really owe our first knowledge of the clinical side of hookworm disease. In 1879, an outbreak of the disease occurred among the miners of the St. Gothard tunnel and this epidemic was known as the St. Gothard tunnel anemia or epidemic, and it was demonstrated by several Italian zoologists—Grassi, Perroncito, and others—that this epidemic was due to the hookworm which Dubini had found in Milan in 1843. It was during this epidemic that these Italian physicians began to experiment with treatment. The Brazilian physicians had already treated many cases in Brazil, but their treatment was practically unknown in other parts of the world. The Italians commenced treatment with male fern, and Bozzolo suggested the use of thymol. This is the origin of the use of thymol in connection with hookworm disease. It was found that the thymol treatment was very useful against any number or group of hookworms then known, although it was first used only against the hookworm of the old world, as found in man. In works on practice of medicine published as late as 1900, or thereabouts, this disease was given only three or four lines. Despite the fact that many Italians had come from Europe to the United States as immigrants, and that the disease had extended from Italy down the Rhine, as far as Belgium, several cases were recognized from the United States. The first man to recognized the egg of hookworms in this country was Dr. Harris. It is a matter of great regret to me that Dr. Harris did not publish that observation. He was not only the first man to recognize the eggs of hookworms in this country, but the first to interpret the conditions correctly. He was the first Southerner to recognize the widespread prevalence and the great importance of this disease. Up to about 1900 there were about 30 cases of hookworm disease diagnosed in different parts of the United States. In some of these it was recognized that the disease was imported from Europe. In other cases there was no explanation of the origin of the infection.

The first cases of infection with the American species of hookworm which were found were the following: One case observed by Dr. Clayter in a patient from Westmoreland county, Virginia; one case in Galveston, Texas, observed by Dr. Allen J. Smith; several cases in Florida, which were handled by Dr. Guiteras.

In about ten days after my first report appeared notifying the medical profession that this disease was common in the Southern states, Dr. Harris came forward with the statement that hookworm disease was the most common of the infectious diseases in the South. This statement dumbfounded me, and I thought that he had exaggerated matters, but later found that his statements were fully confirmed. It was soon found that the cases in America were due almost exclusively to this newly found parasite, which was named *Necatur americanus*, the American murderer. The distribution of the parasite is rather interesting. During the last week, on the spur of the moment a clerk in my office during a period of six days collected from correspondence 6,858 cases. The infection is heaviest or greatest along the sand area. The next heaviest infection occurs in the Appalachian region, and in general the Clay land region and the sand belt region are less infected. Cases are found in other parts of the country. For instance we found a group of cases in New York State, all the individuals being United States soldiers who enlisted in the southern states. Two patients were from Connecticut. I was unable to find the origin of these cases, not knowing where the infection came from. There are a few cases in Chicago, and others which have come to us chiefly from the Philippines. According to this map we have also some cases in southern California.

I have examined personally about 130 cotton mills in the South, and 8 milling camps, and in many instances men, women and children in these mills infected with this disease have it to such an extent that the diagnosis can be made without the aid of the microscope. One out of every 8 of the cotton mill employees of the Southern states, if we accept the 130 cotton mills as a basis, has hookworm disease to such an extent that neither Dr. Harris nor I would think of taking the trouble to make an examination with the microscope. The distribution of the disease coincides very well with the distribution of what one might call the efficiency of the cotton mill labor. If one enters a Piedmont mill he will see that the laborer is distinctly more efficient than in a mountain mill, or a sand land mill. In the sand land mills the infection among the employees runs up to as high as 50, 60, or nearly 70 per cent. in the men, women and children employed, while in some of the Atlanta mills the infection drops to 5 per cent., or 0 per cent., due to the fact that in Atlanta people are in a clay belt, and under good sanitary conditions.

The frequency of this disease in the southern states is simply a zoologic problem. The population in this country consists of four different races of mankind—the white, yellow, black and red. Different races of men have different diseases, and when the races are brought together they trade diseases. The white man has brought to the southern states tuberculosis, and has presented it to the negro, and we all know the results. The death-rate from tuberculosis among negroes is three times as great as among the whites. Hookworm disease as found in the United States has been traced to the west coast of Africa, and as far as the pigmies of Africa. Unquestionably the negroes must have brought many hookworms to this country. It is an academic question whether the Indians in this country had the disease before the white people came here. The negroes must have brought many cases of infection with them, and the distribution of the disease in the United States at present must correspond with the distribution of people who in earlier days came in contact with negroes. We have in hookworm disease an African disease, which has been transmitted to the whites. The negroes having had the disease for generations do not suffer so much from the infection as do white people. As a result they are carriers of the infection, and of necessity there is a greater amount of this disease in localities where there is in the aggregate a greater negro population. Seventy-nine per cent. of the negro farm houses which I have examined and tabulated in North Carolina, South Carolina, Georgia, Alabama, and Mississippi, have no privy connected with them. Practicaly 80 per cent. of the negroes in the rural districts of the South are living under sanitary conditions which are not one iota better than those described for the savage tribes of Africa; and 46 per cent. of the white farm houses I have examined are in no better condition. The distribution of the disease is a natural result of our large negro population, of the insanitary habits of the people, of the character of the soil and shade and climate. There is probably no disease known in the medical calendar which is more easily diagnosed, more easily treated, and more easily prevented than hookworm disease.

Excessive Waste of American Life; How Life Insurance Companies Could Assist in Checking It

HON. E. E. RITTENHOUSE, New York: This parasite is how sapping the blood and blasting the lives of hundreds of thousands of people. It is causing mental and physical degeneracy and industrial inefficiency; to many of its victims it brings not only physical suffering, but misery and distress from the poverty which it breeds. And to this must be added the grief and sorrow that follows the steady march to the grave of those who pay the final penalty for their ignorance of the true cause of their affliction.

Popular interest in health preservation has developed enormously in recent years. Healthful exercise, the out-door

life and right living have become subjects of lively public interest. Health preservation, in one form or another, is a topic of frequent discussion in the public prints of the country. The death-rate from typhoid, another communicable disease, the conquering of which is largely a question of sanitation, has been reduced 54 per cent. since 1880. And still about 22,000 people die annually from this disease. The diphtheria death-rate has been reduced 80 per cent. since 1880. A large portion of this decrease is directly due to the use of antitoxin, which was first introduced in 1895; but still about 20,000 lives are annually lost from this malady. Certainly this record justifies the belief that similar results will follow a systematic and permanent campaign against the hookworm.

Every hour 72 Americans die from preventable causes. Every day, lives are needlessly destroyed which equal the population of a town of over 1,700 souls. Every year the sacrifice through ignorance and neglect equals a population of a city like Baltimore or St. Louis.

These estimates are based on the information and opinions gathered by Prof. Irving Fisher, of Yale University, which are found with his conclusions, in his recent report to the National Conservation Commission of which he is a member. Prof. Fisher, who is also president of the Committee of One Hundred on National Health, has made a very careful and exhaustive study of mortality from preventable diseases, and I believe his estimates are conservative. Let us suppose that the 2,000,000 people who it is estimated are suffering in a greater or less degree from the hook-worm parasite were concentrated in one city instead of being distributed throughout 8 or 9 states. Then these afflicted citizens would be under closer public observation, and the daily death-rate and the daily list of the sick would be a matter of public knowledge.

In Massachusetts, where the statistics are regarded as reliable and the only state where the information was available, I find that the death-rate since 1880 has decreased during ages under 5, 25.4 per cent.; ages 5 to 9, 52.4 per cent.; ages 10 to 14, 21.3 per cent.; ages 15 to 19, 37.1 per cent.; ages 20 to 29, 41 per cent.; ages 30 to 39, 15 per cent. This decline is doubtless practically the same throughout the country. This reduction in the death-rate up to middle life is perhaps to be expected because the diseases against which we have been warring are to a large extent confined to children and early adult life. The increase in the mortality rate from kidney disease since 1880, in Chicago, has been 167 per cent.; in Connecticut, 139 per cent.; from heart disease in Massachusetts, 105 per cent.; from apoplexy in the same state, 135 per cent. The increase from cancer in Philadelphia has been 79 per cent.; from pneumonia, in Chicago, 35 per cent.

With the possible exception of cancer, all these and many other diseases which are common to middle life and old age are, in a great measure, preventable or postponable, if proper methods of living are followed. In fact, most of these diseases may be cured or their development greatly retarded if they are discovered and given attention in their early stages. And it is also true that these diseases cause far more deaths than those of the more common communicable class to which we have referred; and yet, these non-communicable diseases in the preventable class are not among those against which the popular war is being waged. The sinews of war to carry on an organized campaign to conserve human life must come from two sources—private contributions and public taxes.

Owing to the attention already attracted to the ravages of the hookworm by Dr. Stiles, Dr. H. F. Harris and other medical men and laymen, the urgency of the situation has already been impressed on at least one who is able to make a liberal contribution. It is to be hoped that the generous offering of Mr. Rockefeller will be followed by others of equally liberal proportions. Experience has shown that a medical department bulletin couched in language that can be readily understood, and bearing a dignified and cheerful tone, is not only read, but carefully studied by a large number of policy holders.

If a campaign along these lines were inaugurated among the vast body of insured people it would indirectly exercise a most beneficial influence on those with whom the policy holders come in contact, and benefit the public in general. But it should not be a temporary or spasmodic attempt. To be of value it must be permanent, and it is not difficult to see wherein such a campaign would render valuable assistance in the war upon the hookworm in these coast states. Such a movement on the part of the life-insurance companies would benefit the medical examiner, the family physician, the company and the policy holder. There is not a negative or an antagonistic factor in it. The fact that it has never been tried before is no argument against it. Its cost is not excessive. It is legal; it is just; it is humane, and it would add a new and valuable feature to life insurance.

Nothing can possibly be of more value to a nation than the lives of those who compose it. To use every possible means to prevent the needless destruction of these lives is not only a proper function of the government, but a most imperative and solemn duty of government. Our people, through their lawmakers, have recognized this duty only to a limited extent. They have provided health boards and bureaus—local and national—to assist in protecting human life against one class of preventable diseases; that is, those which may be communicated. But, as already indicated, the deaths they have succeeded in preventing are but a fraction of the enormous number occurring annually from some of these same communicable diseases.

The public health measures and the general war against disease are supposed to be more efficiently and effectively prosecuted in Greater New York than in any other large American city. The cost of governing that city last year was $148,447,000, and all it could afford to spend on the health department was 1.6 per cent. of that amount, and during that year the city lost 33,200 people from ordinary preventable diseases. It may also be interesting to know that in 148 cities of the United States, during the year 1907, the ratio of health department expense to the total government expense was 1.8 per cent. In the same cities the ratio of expense for police and fire departments combined was 23 per cent. From this an idea may be gained of the very slight importance placed on the conservation of human life by the public in our great cities. In Greater New York $8,000,000 is spent on the fire department, and the fire loss was $9,400,000; and for the public health department $2,418,499 was spent, while the value of the lives lost from preventable disease, using Professor Fisher's estimate as $1,700 as the producing value of a life, was $56,550,000. Compared with former years, the appropriation was liberal, but notwithstanding the relatively small and wholly insufficient provision for the conservation of public health in New York City during recent years, owing to the efficiency of the Health Department, and the work of the unofficial organizations, the death-rate from tuberculosis since 1880 has decreased 41 per cent.; from typhoid fever, 32 per cent.; from diphtheria 81 per cent.; while the mortality from diseases that were not combated increased rapidly—kidney disease, 73 per cent.; heart disease, 84 per cent.; apoplexy, 34 per cent.; pneumonia, 24 per cent.; and from spinal meningitis, 60 per cent.—during the same period. In spite of these increases the saving of the younger lives has been so great as to reduce the general average death rate in that city 33 per cent. during the same period.

If we agree with former President Roosevelt, that the health of our citizens is the greatest asset of the nation, our health departments—municipal, state and national—should be regarded as an extremely important branch of the public service. But ample evidence that they are not so regarded by the public is found in the fact that in many cities and states the health departments are provided for in a miserly way, with the natural result that the duties are often performed in an indifferent and perfunctory manner. In discussing this phase of the question, I do so not as the president of a life insurance company but as an ex-state official who served about four years at the head of the Colorado insurance department, and I know that it is often much easier to get appropriations for the protection of domestic animals, wild game, fruit trees and forests, than it is for the protection of the public health. If any state enjoys popular government, Colorado is that state, and the people are as intelligent, progressive, and patriotic as in any

state in the Union; and yet, the appropriation for the fish and game department has been far in excess of that for the combined bureaus which look after the public health, and the same lack of interest is found in virtually all states.

No department should show more activity and energy than a health department; it should be organized on scientific lines, presided over by scientific men, and provided with a publicity bureau and a large and efficient corps of medical examiners and inspectors, and their work should be conducted on a scale consistent with the amount of life waste they are to combat. Citizens who desire it should be given a free medical examination, and in some instances of infection it should be compulsory. It is not only necessary to tell a man how to avoid danger, but he should be told when he is in danger. Accidents seldom happen at railway crossings where, in addition to a danger sign, a watchman is maintained.

We all glory in the marvelous growth of educational institutions, and I would be the last to minimize their importance, but when we consider the needless suffering and sacrifice of human life that is now going on, it seems that education is now getting more than its share. The higher education is most desirable, but live Americans are of more importance than dead languages. We are not suffering for want of schools, but our nation is suffering from life waste of one billion and a half annually in dollars alone, which is the estimated productive value of the lives unnecessarily destroyed. If practical and permanent assistance along the lines indicated is forthcoming from public and private sources, how to live a healthful life; how to guard against and detect disease, will, in the course of time, become matters of common knowledge among our people. A higher standard of life would result and the uplift would be a moral as well as a physical one, for to war against disease and wrong living is to war against poverty, immorality and crime.

Pathology of Uncinariasis

DR. NEWTON EVANS, Nashville: Careful distinction must be made between the findings in the severe cases, which often result fatally, and the findings in cases which are accompanied by very mild symptoms, which are difficult to recognize or in which there are no symptoms except the presence of eggs and worms in the feces and usually increased eosinophils in the blood. In 64 cases reported by Chamberlain, all light and without symptoms, the hemoglobin varied from 80 to 91.5 per cent. In 62 cases of mild infection reported by Bass, the hemoglobin percentage averaged 90. The red cell count averaged 5,125,000 in these cases. In 5 cases of light infection in children suffering with pellagra, whom I have examined, the hemoglobin averaged 93 per cent. In Ashford's 19 severe cases in Porto Rico, the hemoglobin varied from 10 to 55 per cent. Leonard in Island of Grenada reported 20 cases. Both ankylostoma duodenale and uncinaria americana were present, the majority of cases showing the ankylostoma. Hemoglobin varied from 8 to 40 per cent. Colbert in Porto Rico reported 5,000 cases. The hemoglobin average was 44.1 per cent. Ashford and King in Porto Rico in 579 cases selected at random found that the hemoglobin averaged 43.09 per cent., running as low as 8 per cent. Capps reported one fatal case from Panama, in which the hemoglobin decreased from 18 to 11 per cent. at the time of death. Harris reported 1 case in which the hemoglobin was 20 per cent. The red cell count is not given in any series of mild cases except in that of Bass, in 62 cases.

In the severe cases there is a decided reduction of red cells. Chamberlain in 12 mild cases, in which the leucocyte count was made, gives the white cells from 12,700 to 7,600—average 9,600. Ashford, in 19 severe cases, gives from 1,500 to 18,000, average 7,800. Leonard in 20 cases found no leucocytosis present. The cases of Ashford and King averaged on admission 8,009. In Harris' 1 case the count was 4,020. In some of the most severe cases a decided leukopenia rather than leucocytosis is present. In the differential count of white cells apparently the only important abnormality occurs in the number of eosinophils. Eosinophilia is almost a constant finding, and practically all observers are agreed that the degree of eosinophilia is not an index of the severity or amount of infection. Ashford and King conclude that eosinophilia is liable to be absent in the more serious cases. They give their conclusions in the following words: "Eosinophilia is the chief feature of importance. It is strange that Boycott and Haldane lay so much stress on the importance of eosinophilia from a diagnostic point of view, for in the more serious cases it is liable to be absent. In 1904, we called especial attention to our belief that eosinophilia was of great prognostic importance and have noticed that some German and Spanish writers have expressed the same view. Very chronic cases, of severe type, poor resisting power, and the lack of blood regeneration, rarely show eosinophilia, or, if at all, only a slight degree. A rise in eosinophilia is of great prognostic significance and their fall, with lack of improvement in symptoms, is not a good omen. In general, good resistance to the hypothetical toxin of uncinaria is expressed by eosinophilia."

Several writers emphasize the point of great resemblance between the blood findings in the severe types of uncinariasis and true primary pernicious anemia. In the case of Capps which resulted fatally, as the severity of the symptoms increased the blood showed at first typical secondary anemia, which gradually changed to a picture closely resembling that of pernicious anemia. However, Ashford and King give the average hemoglobin index in the severe cases as only 0.5; but 3 out of 19 of Ashford's blood counts gave an index of 1.0 or above. Among other changes in the blood characteristics of severe anemia may be mentioned the presence of erythroblasts which, however, are usually rather scanty, and this is especially true of the megaloblasts. In this respect the blood differs from the usual forms of primary anemia.

Poikilocytosis and polychromatophilia are present typically in the severe cases. One of the most remarkable features of hookworm disease is the complete lack of agreement between the severity of symptoms and lesions including the blood changes, and the number of worms found in the intestine. This is shown graphically by Sandwith's post-mortem findings (all in cases of anklyostomiasis) in which in 26 fatal cases the maximum number of worms found on autopsy was 863. In 6 out of 18 of these fatal cases (in all of which the patients had received no treatment to dislodge the worm) there were less than 10 worms in each case and in 2 cases there was only one worm in each. These facts lead to the almost inevitable conclusion that the cause of the anemia and its resultant symptoms is not the direct loss of blood, but is rather due to a toxemia caused by some poison generated by the parasite, to which the organism in the cases in which the patients die with only a few worms present, must become unusually susceptible.

The observers who have seen large numbers of the severe cases and individuals harboring great numbers of the parasite conclude that there is little relation between the number of worms and the severity of symptoms, and agree that the hookworm does not cause its symptoms by its blood-sucking propensities but by some as yet unknown toxin.

I have studied reports of 17 complete autopsies in American cases: Ashford and King, 12, in Porto Rico; Leonard, 4, Island of Grenada; Capps, 1, Chicago from Panama. These can be compared with the findings of Sandwith in 26 autopsies in cases of anklyostomiasis.

There is practically always edema with marked dropsy of the lower extremities, some abdominal ascites, serous effusions in other serous cavities and considerable general anasarca. The bodies usually appear fairly well-nourished, and in adults there is well-developed muscularity; intense pallor of the skin and other tissues is marked. The subcutaneous and other fat of the body is well preserved, of normal amount and of light yellow color. This absence of emaciation and preservation of normal amount of fat is in contrast to the findings of Sandwith in the ankylostoma cases, in which the muscles were wasted and there was usually decided absence of fat. Chamberlain, in comparing the weights of northern and southern recruits, found a difference in favor of the northern recruits, also there is a difference in favor of the non-infected southern recruits over the infected southern recruits. The muscular tissue, according to Ashford and King, is brownish gray in color, friable and often atrophied and microscopically the muscle fibers are fragmented and protoplasm reduced in amount.

The habitation of the worms is usually confined to the upper part of the jejunum and a certain number are found in the duodenum. In a few cases they have been found in the ileum, but never in the colon. Ashford and King describe their occurrence in the stomach in several cases, both attached to the mucous membrane and unattached. In practically all cases there is a mucous gastritis, sometimes extreme. Ashford and King report two cases and Leonard two cases of gastric dilatation. The duodenum and particularly the jejunum are the seat of a severe catarrhal process which also affects to a degree the other portions of the intestines. There is a large amount of mucus in the intestinal canal in which the worms are imbedded and which is often blood-stained in places. The lesions of the intestine are confined to the mucosa and there is often degeneration and atrophy of the intestinal and gastric mucous membrane. At the point of attachment of the worms there is a tiny erosion, superficial, not deep, and about one-half millimeter in diameter. This erosion is usually not surrounded by any discoloration and is difficult to locate with the naked eye. Leonard says that the mucous membrane showed minute hemorrhagic spots, but a majority of his cases were of the ankylostoma type. These minute superficial erosions are in marked contrast to the lesions described by Sandwith in the cases of ankylostomiasis, in which there are numerous petechial hemorrhages marking the bites of the worm and some of the worms are found imbedded for half the length of their bodies in the thickened mucosa, and those so attached are surrounded by much bloody mucus. Ashford and King express the opinion that the food of the uncinaria is the epithelial cells of the mucosa and that it is not a blood-sucker. In not 5 cases in 10,000 was there sufficient blood in the feces to be discovered by the microscope. McNabb at Knoxville says that in every case he finds blood in the stools by the guaiac or the benzidin test. In my 8 cases, all light infections, 2 were positive to the benzidin test. Stiles says that 80 per cent. of the severe and medium severe cases will react to his blotting paper test for blood. The large number of worms removed by anthelmintic in any one case as reported (Colbert) is 4,872. The proportion of males to females of the parasites as found at autopsy by Capps was one male to four females. Sandwith in 50 cases gives the proportion in the ankylostoma infection as 56 per cent. males and 44 per cent. females. Whether the proportion as reported by Capps is the usual one in uncinariasis, I do not know.

The most pronounced change in the liver is fatty degeneration. Ashford and King state that the changes in the spleen are definite and characteristic. It is decreased in size, soft and has a wrinkled capsule. Microscopically, the 8 cases examined invariably showed a decided paucity of lymphoid elements, and even a decrease in the size of the lymphoid cells. The Malpighian corpuscles were greatly reduced in size and in cellular content. The increase of connective tissue was only relative and apparent. Capps reported a large spleen with interstitial hyperplasia. This was possibly malarial in origin. Leonard says that the spleen was normal in 2 of his 4 cases, and enlarged in 2, the enlargement probably being due to malaria.

Ashford and King report that practically all fatal cases show a chronic parenchymatous or diffuse non-indurative nephritis. The kidneys are invariably pale and usually slightly enlarged. In the older patients there was a slight increase in connective tissue. Microscopically the changes were most marked in the convoluted tubules, where there was fatty degeneration and desquamation of epithelium. There were exudates of serum and blood into the interstitial tissue and Bowman's capsules, and bloody and epithelial casts in the tubules. Their findings in the urine of the severe cases correspond well with these post-mortem lesions. Twenty in 24 cases had small trace of albumin before any anthelmintic treatment; 18 of the 24 had casts, hyaline and granular, no bloody casts and few epithelial.

The only constant changes seen in the lungs are the extreme pallor, as in all the other organs, and in almost all cases a pulmonary edema, as shown by the dripping of fluid from the cut surface. Many cases show signs of passive congestion, probably due to incompetency of the mitral valve. Every case is reported to have had a greater or less degree of pleuritic effusion, clear and yellow in color.

Sandwith says that there was a cardiac hypertrophy in 10 of his 26 cases. The American observers also report cardiac hypertrophy in several cases and dilatation dependent on fatty degeneration in many. The muscle was frequently flabby and a functional incompetency of the valves was present. Ashford and King say that there is frequently an increase in the pericardial fat. In all cases a considerable amount of serous effusion is present in the pericardial cavity. Microscopically they report in two or three cases distinct brown atrophy, and in two cases extensive fatty degeneration.

About the only constant lesions described in the brain are intense anemia and an effusion into the ventricles of a clear, pale, yellow fluid.

The marrow of the shafts of the long bones usually has undergone changes somewhat similar to those in pernicious anemia, although Capps in the description of his case says that the marrow of the femur was extremely yellow and fatty. "At two points it had a reddish color, but was even here practically all fat."

Ashford and King lay great stress on changes in hemolymph glands. In two cases in which search was made numerous hemolymph glands of considerably larger size than the normal type were found in the region of the abdominal aorta. Most of these were of the spleno-lymph variety.

The etiologic relationship of the so-called ground itch to uncinariasis can be considered to be proved beyond any reasonable doubt. In 1901 Loos first showed experimentally that the larvæ of ankylostoma enter the skin through the hair follicles and penetrate the deeper tissues. This entrance has been repeatedly demonstrated since. All the descriptions of the symptoms, lesions and sequence of events in ground-itch either accidental or experimental in origin are in perfect accord, and have been accurately described by Ashford and King and by Claude Smith. According to Ashford and King the exposure of the skin to the larvæ causes the following symptoms: 1. Itching within a very short time. 2. Followed by redness and swelling of part. 3. In two days papules appear. 4. These rapidly change to vesicles, discrete or often confluent, which later usually rupture. 5. Frequently followed by pustules, but in favorable cases pustules do not form. 6. In case pustules do not form the vesicles soon begin to dry up and crusts are formed and in the milder cases not forming pustules, the lesion completely subsides in a week or two. 7. In the more severe cases, in which the symptoms are probably due to secondary pyogenic infection, extensive and deep ulcers form, which sometimes respond well to treatment but often are very resistant.

Claude Smith has shown that a toxin may be extracted from the larvæ by alcohol which will produce the itching and other changes of ground itch but in a milder form. Colbert reports that in 5,000 cases of uncinaria 4,956 gave a typical history of one or more preceding attacks of ground itch. Ashford and King say that 96 per cent. of 12,000 gave such history.

(*To be continued*)

CITY OF WASHINGTON BRANCH OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

Regular Meeting, Held Jan. 5, 1910

The Pharmacopeia of the United States

MR. GEORGE M. BERINGER, in calling attention to the report of the American Pharmaceutical Association committee on the U. S. Pharmacopeia, pointed out that this report represented the individual views of the ten members of that committee, and that no attempt had been made to harmonize the views of the several members. In regard to the scope of the book, he called attention to the views of one of the members of the committee who believe that the Pharmacopeia should be a medium of communication between physicians and pharmacists and should represent as nearly as possible the present-day needs and practices of representative medical men. On the matter of nomenclature, Mr. Beringer expressed the opinion

that the contraction of the chemical names for synthetic remedies has been criticised, though it is probably the best that can be done at the present time. The Latin titles should be as nearly correct as possible and the Pharmacopeia should contain a comprehensive list of synonyms. Among the more desirable features that should be added to the Pharmacopeia, he said, are: Working methods for determining physical and chemical constants, working methods for sterilizing official substances, and the harmonizing of tests so as to make them applicable by the retail druggist.

PROF. HENRY KRAEMER discussed the importance of pharmacognosy in connection with Pharmacopeial work and pointed out that in the U. S. Pharmacopeia fully 70 per cent. of the articles are more or less intimately dependent on plant drugs. Pharmacognosy itself is a distinct branch of science and involves problems that differ essentially from those presented by botany or the simple study of plants themselves. It is broader than botany in that it includes the study of conditions which tend to modify the constituents of drugs. Drugs themselves, or at least many drugs, are becoming scarce, and this fact makes the proper study of pharmacognosy even more important, so as to be able to secure genuine and pure drugs.

Speaking of the U. S. P. VIII, he pointed out that this book is not abreast of the advances that have been made in pharcognosy, and that it is, in fact, distinctly behind the German Pharmacopeia which was published five years before. Foreign pharmacopeias generally include adequate pharmacognostic descriptions, and all of them require the use of the compound microscope. Some of the foreign pharmacopeias do not recognize powdered drugs, and there is much to be said in favor of this, as powdered drugs are always difficult of recognition and generally tend to deteriorate rapidly.

Speaking of the recently published report of the A. Ph. A. committee on the drug market, he deplored the fact that this report reflects discredit on pharmacognosy and the pharmacognosists of the country. He asserted that men who claim to be trained in pharmacognosy should and must be able to distinguish between true and fraudulent drugs. The whole subject of drugs should be on as satisfactory a basis as are spices, and the Pharmacopeia should provide a purity rubric for vegetable drugs, so as to avoid effectually the present-day conditions under which drugs vary from 0 to 99 per cent. in value. In regard to the proposals to standardize the finished products, he pointed out that assay methods are as yet incomplete, and that galenical preparations of drugs do not depend for their activity on the action of any one ingredient. Many drugs contain antagonizing products that materially influence the direct action of the so-called active constituent; for these reasons a fluid extract when made from a poor or unsatisfactory drug cannot fully represent the complete and necessarily complex action of a representative drug of good quality. In this country, the campaign of education has only begun and much is yet to be done before medical men and pharmacists fully appreciate the possibilities and the value of pharmacognosy. Because of this lack of appreciation of the value of pharmacognosy, the Pharmacopeial Convention should not bind the hands of the subcommittee, and above all the Committee on Revision, as a whole, should not be empowered to revise (?) the work of men who are closely in touch with practices in the drug market and the possibility of developing methods for controlling the nature and purity of vegetable drugs.

MR. H. H. BARTLETT, in discussing the nomenclature of the Pharmacopeia, pointed out that approaching the question from the viewpoint of an outsider it would appear desirable that the science of pharmacy and all that pertains thereto should be made universal, and that above all it would appear desirable to conform to widespread practices in connection with nomenclature. As an illustration of the shortcomings of the U. S. P. VIII in the matter of nomenclature, he reviewed the names proposed by the Brussels Conference for the several potent medicaments included in the protocol and the compliance or lack of compliance of the U. S. P. with these several titles. For syrup, he believes that the more generally accepted Latin "Sirupus" is to be preferred to the U. S. P. style "Syrupus," as the former is not alone more widely used but also generally accepted as being the correct form. For ergot he believes "Secale cornutum" to be preferrable to "Ergota," as the latter has no status as good Latin.

"Fluidextractum" he thinks a good illustration of the fantastic Latin that may be evolved by American scientists. He discussed this term at some length and pointed out that it was against all accepted practices to include or look up a prefix between two root words. Apart from the hybrid character of this word, both the English as well as the Latin, it is and will continue to be an insurmountable barrier to International nomenclature; as foreign countries will not adopt it, the linguistic sense being better developed in Europe than in this country. Many of our chemical names are also in need of revision so as to bring them into harmony with present-day thought in chemical theory and in keeping with the nomenclature now generally adopted abroad. Thus, the alkaloids should have the termination "um" in place of "a," so as to bring them into accord with the nomenclature of modern chemistry.

DISCUSSION

PROF. JOS. P. REMINGTON said that we should have many such meetings as this between now and the time for the convening of the Pharmacopeial Convention in May. Taking the several communications in the reverse order to which they had been presented, he disclaimed any intention of posing as a philologist, but he was and is unalterably opposed to the indiscriminate changing of Latin titles. The matter of "Fluidextractum" he pointed out had the endorsement and sanction of the late Charles Rice, who was generally recognized as a Latin scholar of some note. The most serious objection that has been made to this word is the charge of novelty, and this, he thinks, is not a serious fault when we appreciate the great advantage that has accrued from the segregation of the several extractive preparations in the Pharmacopeia and the classing together of all of the fluid extracts instead of having them, as formerly, interspersed with the extracts. Professor Remington believed that the Committee on Revision should be extremely conservative in the matter of nomenclature changes, if for no other reason than the millions of dollars' worth of labels that would be involved. He discussed the difficulties in connection with volatile oils at some length, and pointed out that the need for detecting adulteration in this class of preparations brought to mind some of the many suggestions that have been made in connection with pharmacopeial tests; some men wanting simple tests, others preferring complex measures. He expressed his belief that the very best test would be none too good for the Pharmacopeia, and that now that the Pharmacopeia was the law of the land, the intelligence of the drug clerk was not to be considered as a reason for limiting the nature of the assays or tests to be included in that book. In the matter of vegetable drugs he believed that we must depend, for many years to come, on the accuracy of the pharmacopeial description of these substances. Now that powdered drugs are so widely used they should be fully described in the U. S. P. so as to facilitate their recognition and thus control their identity and purity.

He expressed the belief that a long list of synonyms would be dangerous as it would lead to confusion and unnecessary complications. He pointed out that many names that were practically identical were nevertheless used for substances that might differ materially, and that the Pharmacopeia was limited to but one substance under each name. Admissions to the Pharmacopeia he believed should be left to physicians. He expressed the opinion that the American Medical Association, through its committee on the U. S. P., should prepare and present at the coming Pharmacopeial Convention a tentative list of admissions and deletions. Such a list would certainly be accepted by the Committee on Revision, as it was apparent that drugs to be used by the medical profession for medicines should be dictated by physicians. Doses, of course, should also be furnished by members of the medical profession.

DR. H. W. WILEY expressed himself as being satisfied that there was every assurance of our having a satisfactory Phar-

macopeia. He agreed with Professor Kraemer that it was desirable to have pure drugs. Nature was a wonderfully capable synthetic chemist and the products of Nature's workshop were usually complex. As an example of the folly of placing too much reliance on a single ingredient, he cited tea and coffee, both of which have as their main active constituent caffein, but this constituent was so modified by the accompanying substances that no true lover of coffee or tea would depend on the caffein content of his beverage as an indication of its value. Much the same can be said of other drugs, which if they have virtues, should be available in as satisfactory form as possible. The coming revision of the U. S. P., to be generally acceptable, must be conducted on a distinctly higher plane and must embody a broader view of the whole general subject, greater skill of the individuals who are responsible for the revision and a greater appreciation of the public welfare, for after all was said and done the Pharmacopeia was not a book for the retail druggist, the manufacturer, or the physician, but was designed, primarily, to protect the unfortunates who are in need of medicine to make them well.

Dr. Wiley paid a high tribute to some of the members of the Committee on Revision and said that if his prayers prevailed these members would find a place on the Committee on Revision for the U. S. P. IX; on the other hand, he asserted that there are a few who, if his prayers are answered, will not even seek a place on the coming Committee on Revision as they can well be spared.

DR. REID HUNT asserted that no one was more cognizant of the difficulties connected with the matter of admissions and deletions than he. He also pointed out that it would be practically impossible to make a Pharmacopeia that would comply with the supposed needs of all who are interested in a book of this kind. He believed the Pharmacopeia should be limited to the best and most widely used drugs in medical practice, leaving it to others than the members of the Pharmacopeial Convention to establish standards for articles primarily of commercial rather than of medical interest. Also in view of the fact that medicine is distinctly international and that the next U. S. P. will probably draw, as it has always done, very largely from foreign sources, he said that greater efforts should be made to attain international agreements both as regards standards and nomenclature. In this connection he pointed out that for the newer remedies, particularly for the substances that have been protected by patents, there now exists a greater degree of uniformity than has hitherto been found in connection with drugs that have been in use for centuries.

PROFESSOR KALUSOWSKI expressed himself as being in favor of physicians dictating the remedies that should enter into the Pharmacopeia and that the revising of the book should be done by pharmacists and specialists thoroughly familiar with the possibilities of the times. He also stated that the Pharmacopeia should be more evenly balanced and that the space devoted to the several subjects should be more in keeping with their relative importance. Being a legal authority, the Pharmacopeia should contain only the best available tests and these should be stated in language that is clear and yet concise.

PROFESSOR REMINGTON said that from the point of view of Dr. Hunt, engaged as he is in research and in the study of the newer remedies and newer theories that are advanced from time to time, one was likely to get an entirely wrong impression of the articles the rank and file of medical practitioners, the men who are saving the lives of their patients, were using. Many medical men live in districts where the newest and latest remedies have not reached and for this reason antiquated and obsolete substances cannot be entirely ignored. That even otherwise up-to-date physicians at times appreciate the efficacy of old-time remedies was illustrated by the stand taken by one of the physicians on the Committee on Revision, who, when it was proposed to delete the mixture of asafetida, pointed out that he himself had found it to be a useful remedy in flatulence and was using it daily in his practice and, on the representations of this particular member of the committee, mixtures of asafetida was retained in the U. S. P.

WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION

Nineteenth Annual Meeting, held at Omaha, Neb., Dec. 20-21, 1909

(Continued from page 316)

Movable Liver and Constriction-Lobe of the Liver

DR. M. L. HARRIS, Chicago: Movable liver is found in two classes of patients: those in whom the movable liver is the chief or only abnormal condition present, and those in whom it is but a part of a general visceral ptosis. In the former class the condition is probably due to congenital defects of the attachments of the liver, while in the latter class the loss of the support affected by a firm abdominal wall, together with a gradual yielding and elongation of the attachments of practically all the abdominal organs, plays an important part in the condition. Constriction-lobe is a very common condition, being found, according to Leue, in 1.9 per cent. of male, and 25.3 per cent. of female subjects over 16 years of age, in which he performed an autopsy, 3,484 in number. Both movable liver and constriction-lobe may give rise to symptoms which are distinct and often distressing, relieved only by properly suturing the liver in place, or by suturing the floating lobe to prevent its abnormal mobility.

DISCUSSION

DR. R. C. COFFEY, Portland, Ore.: I make it a point to fix a movable kidney where it can always be felt with the hands afterward; and the patient does not have pain and redisplacement, and the results are good. In twenty-two cases of gastroptosis I found the liver displaced in four cases sufficiently to require suture; but my technic has been a little different from that of Dr. Harris, in that I do not believe it is necessary to scarify the liver. In the cases I have had there has been no redisplacement.

DR. JAMES E. MOORE, Minneapolis: A woman, a neurasthenic, was confined to bed most of the time, complaining of a tumor in the lower abdomen. I found that the right end of the liver was loose, so that when she turned on the liver side the edge of the liver ran up and down, the organ being pushed over to the middle of the abdomen. Shortly after suturing the liver in place the woman got out of bed and has been traveling all over the United States and other countries since.

DR. A. F. JONAS, Omaha: At a meeting in Chicago I reported three or four cases of ptosis of the liver in which the margin of the liver descended four fingers' breadth below the right costal margin. At that time I had used the gall-bladder as a suspensory ligament. The patient was placed in the semi-Trendelenburg position and the liver pushed up as far as it would go, and sewed with the gall-bladder to the upper margin of the incision, which was extended up against the costal arch. This operation was successful. I have occasionally done the operation since, but only in cases in which the liver could be pushed in its normal position.

Two Cases of Operative Removal of Cervical Ribs

DR. S. C. PLUMMER, Chicago: The first patient was a woman of 24. Symptoms began 8 years ago and consisted, at first, of pain extending from the axilla to the middle of the ulnar side of the forearm. Four years ago there was weakness of the hand and later some muscular atrophy appeared. Pain was aggravated by slight exertion. There was no anesthesia.

The second patient was a woman of 30, whose symptoms began 20 years ago. Pain in this case was confined to the ulnar side of the forearm; as in the first case, it was aggravated by exertion, but was also brought on by exposure to cold. She also suffered from coldness of the extremity. There was atrophy of the thenar and interossei muscles. There was no anesthesia. Both of these patients had bilateral cervical ribs, as shown by the skiagrams, but in both the symptoms were confined to the right upper extremity. The first patient was operated on March 16, 1905, and her case was included as Case 37 in Keen's article, published in the *American Journal of the Medical Sciences*, February, 1907. The second was operated on Sept. 22, 1909. In each case an incision extending obliquely upward and backward for about three inches from

just above the right clavicle at the outer border of the sterno-cleidomastoid muscle, was employed. The first patient reports, Dec. 14, 1909, that she now has very little pain, but that the strength of her hand has not improved. The second patient was almost entirely free from pain one month after the operation, but is still somewhat sensitive to cold.

DISCUSSION

DR. JAMES F. PERCY, Galesburg, Ill.: Four years ago I saw three cases of cervical rib in one year, one of them in a girl of 14. The patient was referred to me because of a swelling in the neck above the clavicle. I saw her with the late Nicholas Senn, and I mention these cases to give his opinion in reference to operation. This girl had some pain in the left arm, but it was not constant. The *x*-ray showed what the condition was. Dr. Senn advised against operation, because, he said, in the first case of cervical rib he operated on he opened the pleura, and got collapse of the lungs, which never recovered. This patient had a similar condition on the other side, but he did not have the courage to operate and said he would not advise it until it became imperative. The next case was a girl of 16, and in this case the cervical rib was also on the left side. It was discovered by the dressmaker, and the patient came to me because of swelling. The third case was in a girl of 20, who had this condition on both sides, and was urged to have something done, because of what the dressmaker said in regard to enlargement of the lower part of her neck. Not one of these patients has been operated on up to date. I have beautiful skiagraphs of all three cases.

DR. L. L. MCARTHUR, Chicago: Not all of these cases of cervical ribs produce symptoms attended by pain. I saw a woman with a case of double cervical rib, which produced atrophy of the muscles of the hand and double drop-wrist, but unaccompanied by pain. Being familiar with the fact that not all cases of cervical rib are relieved by operation, and in stating the case to her, and she not being assured she would get relief, operation was refused.

DR. A. F. JONAS, Omaha: I have a case of cervical rib I would like to place on record in a young woman of 21. She had a swelling in the left side of the neck, which was tender and hard, and had been diagnosed as sarcoma of the cervical vertebra. A skiagram showed a cervical rib. She had no symptoms referable to the hand or arm. They felt normal in every respect; but there was pronounced and decided tenderness over the rib, the point of which could be seen pressing underneath the skin. On account of tenderness and the pain it caused her it was decided to remove the rib. We cut down upon it and found running over it what we thought was the common carotid artery, and in pressing it, it was found to be the subclavian artery, which rolls up over the rib at least three-quarters of an inch, and then dips down shortly. I wish to call attention to the anomalous course of the subclavian artery on the left side in this particular case.

DR. HARRY M. SHERMAN, San Francisco: I would like to say a few words about the persistence or recurrence of pain in these cases. A woman of 30 complained of pain in the arm. Cervical rib was suspected on account of the character of the pain. The rib could be felt, and a skiagram showed its presence. It was removed without any trouble, and the pain and the disability symptoms disappeared. She returned to her home in the South, but came back in a few months stating that the pain had recurred, and examination did not reveal any change whatever in the condition of her neck from what it had been when she left me. She was pregnant, and returned to San Francisco to be confined in the home of her mother. I report this case with reluctance, because the baby has not yet been born. I wanted to see especially if the pain would disappear again after pregnancy and confinement; that is, if there was some condition of the nerves left after the removal of the rib, which predisposed this patient to pain sometimes, whenever a special strain was put on the individual; and I think that is all the more likely from Dr. Plummer's report of the slow recovery of the patients whose cases he has reported.

Hernia: What Constitutes a Predisposition?

DR. A. F. JONAS, Omaha, Neb.: In this paper I draw the following conclusions: 1. All deductions as to predisposition to hernia that are based on the direction and size of the inguinal canal, a large external ring, are untrustworthy. 2. All opinions as to predisposition based on the vague ideas of muscular weakness, reduced abdominal resistance and diminished support of connective tissue structures, are unreliable. 3. Retarded descent or undescended testicle favors a complete or partial non-obliteration of the vaginal process. 4. A partial or a completely non-obliterated vaginal process may be regarded as an anatomic predisposition to oblique inguinal hernia. 5. The non-closure of the vaginal process cannot be recognized clinically. 6. It would seem that we are scarcely justified in using the term predisposition to hernia, because of the lack of reliable clinical data.

The Frequency of Congenital Sacs in Oblique Inguinal Hernia

DR. WILLIAM HESSERT, Chicago: The saccular theory of the origin of oblique inguinal hernias is nothing new. Mention of the congenital origin of hernial sacs was made in 1762 by Camper. The testicle, at first an abdominal organ, reaches the internal ring, through the agency of the gubernaculum, at about the seventh month, and reaches the scrotum at the time of birth. At this time the vaginal process is continuous with the peritoneal cavity. From ten to twenty days after birth, obliteration takes place. This begins at the external ring and proceeds more rapidly downward than upward. At three points there seems to exist a greater tendency to obliteration, namely, (1) at the internal ring, (2) at the external ring, and (3) at a point just above the testicle. Dissections of Zuckerkandl, Camper, Sachs, and others have shown that in almost half of the infant bodies examined the vaginal process was found to be open on one or both sides. The right testicle descends later than the left, and defects of closure of the vaginal process are twice as frequent on the right side as on the left. The saccular or congenital theory of oblique hernia is that one which credits the majority of these hernias as being due primarily to the improper closure of the vaginal process in the infant, and the persistence of a sac, which later gives rise to hernia. These sacs have been found in cases in which a hernia never developed. They explain the sudden coming down of a hernia. The atypical closure of the vaginal process explains the different varieties and combination of hernia sacs and hydroceles. Among the signs by which a sac may be recognized at operation as of congenital origin are the following: (1) glove-finger-like and narrow sac, generally empty; (2) thin wall; (3) absence of subserous fat; (4) trabeculated structure; (5) annular constrictions, which often still correspond with the internal or external ring; (6) thickening of fundus; (7) fibrous process extending downward from fundus nalis testis; (8) close relationship of sac to vas deferens and a variable distance, sometimes reaching to the tunica vaginalis-spermatic vessels—the latter may be spread over the sac; (9) sac still enveloped by fibers of the cremaster. The following conclusions may be drawn: 1. Over three-fourths of all oblique inguinal hernias owe their existence to a preformed sac, the result of some form of faulty closure of the vaginal process in the infant. 2. Congenital malformation of the muscles of this region, as seen in the failure of the internal oblique and transversalis to form a conjoined tendon, is a predisposing cause of both oblique and direct hernias. 3. The lesson to be learned from this study is that inasmuch as the hernia owes its existence to a preformed sac, the essential and fundamental act in any hernia operation consists in the complete ablation of the sac. The surgeon should avoid the leaving of an infundibuliform process, which may be the cause of recurrence, no matter what the type of operation has been.

Some Anomalies of the Sigmoid

DR. L. L. MCARTHUR, Chicago: In May, 1909, I was called to operate in a case of intestinal obstruction of eleven days' duration, occurring in a young woman, a teacher, about 30 years of age, whose history was negative, except for chronic constipation. For several days she had had no bowel movements, in spite of cathartics, colonic flushings, etc. Becoming tympanitic and suffering colicky pains, she consulted her family physician, who, being unsuccessful in relieving her, sent her to Dr. Montgomery's sanitarium. When seen by me on the

eleventh day she presented an anxious appearance, cold, clammy extremities, enormously distended abdomen, had but slight temperature (below 100 F.), rapid and weak pulse, low leucocyte count (12,000), vomiting not fecal; abdomen tympanitic all over, no tumor to be felt externally, nor by rectum; vaginal vault and uterus crowded downward. Though weak, operation was advised. On opening the abdomen the small and large intestines both dilated, but the chief dilation existed in an enormous loop wedged in the pelvis. On raising this loop it was seen that it was the sigmoid, that it was sharply flexed at the point of junction with the rectum, and that the relief of its incarceration permitted its contents to pass down into and out of the rectum, with reduction of colonic distention. Fear that so simple a procedure might not explain so obstinate an obstruction, careful and extensive search was made throughout the abdomen without finding any other cause. The mesosigmoid showed thickening, scar tissue and old infiltration; I anchored the loop of sigmoid posteriorly with its distal and proximal ends unusually close together, and the band of Gersuny was very evident. The latter was cut, the very large sigmoidal loop restored to the left abdominal cavity, the small intestines restored to the pelvis, the omentum drawn down over the sigmoid, and the abdomen closed. Recovery was uneventful. I am in accord with Dr. Clark in not favoring the fixation by suture of such loops to either the anterior or posterior wall, as the potential dangers are almost equally as great as that of recurrence. Were a similar case to be encountered and the patient not in quite so desperate a condition, I should make a side-to-side anastomosis between the proximal and distal end before restoring it to the abdomen, just as I have corrected a rectal prolapse by anastomosing the drawn-up rectum to the first portion of the sigmoid. A few months ago I saw Dr. Arbuthnot Lane remove an entire colon for chronic obstinate constipation, in which he commented upon the frequency with which the most refractory cases of constipation were associated with prolapse of the dilated sigmoid, this while in the act of lifting such a sigmoid from the pelvis.

DISCUSSION

DR. A. E. BENJAMIN, Minneapolis: I wish to report one case and to mention a number of others I have seen in which the patients had symptoms of pronounced constipation, and some of them having other conditions which demanded operation. I have made it a practice in nearly all these cases to investigate the condition of the sigmoid. I found undue angulation of the sigmoid, with thickening around it, and some bands. These I have separated. The previous history of these cases has usually been that of extreme constipation. Recently I operated on a girl, 18 years old, who was attending college. She came to me for the sole purpose of being relieved of extreme constipation, as she said she was not troubled in any other way. Careful examination revealed enlargement of the left ovary. It was slightly cystic. My experience in other cases taught me there was something else wrong. I operated and found a small dermoid cyst of the ovary which could have had very little to do with the constipation for which she sought treatment. I found a dilated condition of the sigmoid, with extreme angulation, thickened band fibers, and constriction of the sigmoid. These were separated and the raw surface covered. Since that time her bowels have moved regularly every day, without the aid of cathartics, whereas before operation she would go for a week without a bowel movement.

(*To be continued*)

AMERICAN ASSOCIATION FOR CANCER RESEARCH

Annual Meeting, held in New York City, Nov. 27, 1909

(Concluded from page 312)

Influence of Regenerating Tissue on the Animal Body

DR. CHARLES R. STOCKARD, New York: When the adult animal body regenerates new tissue in order to replace a lost part, or when abnormal secondary growths arise, the growth equilibrium of the body is disturbed, and this disturbance is followed by changes which affect the usual physiologic condition. The question arises whether the changes which follow or accompany normal regenerative growth are in any way similar to the effects resulting from malignant growths. In order to test this proposition experiments have been conducted with a series of animals regenerating different amounts of body tissue. The animal used was the medusa, *Cassiopea xamachana*, since it readily regenerates new arms as well as portions of its body. Its food supply may also be perfectly controlled.

In the first experiment each of twenty selected individuals had five of the eight oral-arms amputated at their bases, and another similar group of twenty specimens had in addition to the five arms a piece of definite size cut from their bodies. Both groups, therefore, regenerate equal numbers of arms, but the latter group also grows new tissue to replace the removed body piece. All these regenerating individuals decrease in body size more rapidly than uninjured specimens kept under similar conditions. The second group, which was regenerating more new tissue, decreased in size much more rapidly than the first during the early part of the experiment. After two weeks, however, the removed body piece had been replaced, and it is important that after this period the second group ceased to decrease in size any more rapidly than did the first group. After this period both groups were growing only the five new arms. The regeneration of new arms proceeds more rapidly at first and gradually slower. Associated with this fact is a primarily more rapid decrease in the body size and later a smaller decrease in proportion as the regeneration rate of arms is slower. Regenerating tissue grows at the expense of the animal body and will continue to grow at a vigorous rate even though the body be starving to death. When an additional amount of regeneration is imposed on an animal it suffers in body size and vigor, and when this additional formation of new tissues ceases the unusual decrease in body size also ceases. If an animal regenerates new tissue at a rapid rate the body suffers more markedly than when the regeneration rate is slower. Other somewhat differently devised experiments gave results which entirely confirm the above statements. A comparison between the manner in which newly regenerating tissue affects the animal body and the reaction of the body to malignant growths is most suggestive, and there are undoubtedly many points of similarity between regenerative and malignant growths.

Case of Blastomycosis Associated with Epithelioma of the Jaw

DR. WILLIAM B. COLEY, New York: The patient, a man aged 25, was admitted to the General Memorial Hospital as a case of generalized sarcoma on Dec. 9, 1908. The first symptom which was noticed 3½ months prior to his admission was a severe sharp pain in the lower part of the left chest. Two and a half months before admission he had an attack of hematuria, the same recurring at intervals of from 1 to 2 weeks up to 2 weeks before admission. One and a half months before admission the first tumor was noticed in the right side of the lower jaw at the angle of the mouth. A few days later a similar mass appeared in a corresponding position in the left portion of the lower jaw. There was rapid increase in the size of the tumors and loss in weight. A few weeks previously a tumor developed in the region of the left kidney. At the time of his admission there was a tumor in the right side of the mouth about the size of an English walnut, and a similar somewhat smaller tumor in the left side; a tumor over the lower part of the sternum 1½ inches in diameter, very hard and firmly fixed, but not tender. Liver and spleen were not enlarged. A specimen which had been removed from the tumor of the lower jaw at Mt. Sinai Hospital three weeks before the patient's admission to the General Memorial was reported by the pathologist of Mt. Sinai Hospital as "endothelial sarcoma." On Dec. 12, 1908, the temperature rose to 105 F.; on December 14 to 106 F., and remained between 102 and 104 F. for nearly two weeks. The blood examination showed marked leucocytosis. The patient's general condition was little affected during the highest temperature. The tumor over the sternum increased with great rapidity; on December 30 it had become larger than two fists. Aspiration done under careful aseptic precautions drew thick, dark creamy pus which was placed in sterile tubes; blastomyces were found in the pus. The tumor continued to increase rapidly in size, and a week later reached the size of a child's head. It was incised under

cocain anesthesia and drained. Numerous tumors developed with great rapidity in various parts of the body. Death occurred on Feb. 9, 1909. Paralysis of the lower extremities had set in 38 hours before death. Death occurred on the sixty-first day after admission to the hospital, five and a half months since the beginning of the first symptoms. Examination at death showed fifteen tumors externally in various parts of the body. There was no tenderness present in any of these tumors, except the large discharging tumor in the right upper chest, and this was not tender in the early stages. A portion of the larger jaw tumor was removed and examined by Dr. James Ewing, pathologist to Cornell University Medical School. His report read as follows: "The material contains a malignant epithelioma. It is pigmented, which suggests that the original growth was a pigmented mole. I could find no blastomyces in the material and cultures were negative." I cannot express any opinion as to whether the blastomyces played any part in the etiology of the tumors of the jaw. The coexistence of an epithelioma of the jaw with the other tumors of blastomycetic origin was certainly interesting.

DISCUSSION

DR. JAMES EWING, New York: The evidence on which the diagnosis of blastomycotic infection is based must be admitted to be defective in this case, in that no cultures were obtained and no blastomyces found in the tumor. Evidently the patient had a severe general infection, but the relation of the blastomyces found in the pus to this infection is not clear.

Early Cutaneous Carcinoma, Illustrated by Lantern Slides

DR. H. H. JANEWAY, New York: The photomicrographs here presented represent a graduated series of the two varieties of epitheliomata of the skin, the squamous and the basilar celled growths. A study of the series justifies conclusions which are not entirely in accord with the views of either Borrmann or Ribbert. These two writers have made the most important recent contributions on the early stages of epithelioma and represent divergent aspects of the autogenetic theory of cancer. While some of the tumors here illustrated appear to have grown from previously isolated groups of cells, and others indicate a close relation between chronic inflammatory processes and beginning epithelioma, yet one must conclude, from the series of sections here presented, that neither an embryonal deposit nor a cellular infiltration of the connective tissue stroma is the essential factor in the etiology of all cancers; but that the great majority of cutaneous epitheliomas originate by a primary metaplasia of the body cells. One may, however, go further than this and state that the peculiar clinical features of the two somewhat unusual cases of multiple superficial epitheliomata herein reported, indicate that such a metaplasia depends on what one may, somewhat indefinitely but nevertheless properly, term individuality. There is something about these patients which results in their skin cells possessing a peculiar proneness to undergo a primary cancerous metaplasia.

In one of these cases, the one from which the youngest tumors were taken, there existed a hitherto undescribed subepithelial capillary congestion in association with the most minute growths. This subepithelial capillary congestion is of such a character that it suggest a liberation of regenerative or proliferative functions in the cells becoming epitheliomatous; and such a change may be conceived of as occurring and increasing, according to the conception of Benecke, at the expense of the normal physiologic functions of the cells.

A consideration of these various facts, together with clinical evidence, indicates that the essential change applicable to all cases in the transition of somatic cells into cancer cells, is primarily of the nature of a degeneration—a degeneration which, in one class of cases, depends on the existence of a previously isolated group of cells; in another class, on associated lesions in the connective tissue stroma, including among these changes the above described subepithelial capillary congestion; and in still a third class, which is by no means a numerically unimportant one, on metaplastic activities for which the epithelial cells are alone responsible. The development of cancer in these latter cases is unassociated with any changes in the connective tissue stroma and individuality of the cells is doubtless a determining factor in the development of the degeneration in them.

Peculiar Cell Inclusions, Probably Parasitic, in Chronic Lesions of the Spleen, Liver and Lymph-Glands from a Case of Endemic Goiter

DR. S. B. WOLBACH, New York: Peculiar cell inclusions, which are undoubtedly parasitic, were found in a case of colloid hypertrophy of the thyroid gland. The patient came from a locality where "goiter" is common. The parasites are very numerous in lesions in the spleen, cervical, mesenteric and prevertebral lymph nodes and in the liver. The lesions are granulomatous in character. The smallest lesions consist of groups of endothelial cells. Larger lesions, the size of miliary tubercles contain numerous giant cells, and the lesion as a whole resembles tuberculosis, but necrosis does not occur. Marked connective tissue increase and final cicatrization is the rule. The parasites are found in giant cells and in endothelial cells. Barely they have been found free in lymph sinuses. The largest forms are from 20 to 30 microns in diameter, and consist of a central body from 3 to 5 microns in diameter, surrounded by radiating spinous projections. The central body and spinous projection stain by Gram's method. Material surrounding the central body decolorizes by Gram's method. Giant cells containing these radiate structures usually contain, also, small bodies within vacuoles. Similar minute structures, many with a single central deeply staining dot or spinous projection, are found within endothelial cells in early lesions. The finding of intermediate forms between the minute bodies in vacuoles and the large radiate structures has established the opinion that these inclusions represent stages in the evolution of a parasite. The inclusions are not affected by solvents for fat, or by acids and alkalies. They do not stain with osmic acid or other fat stains. They can be readily demonstrated in frozen sections of formalin material. The nature of the parasite has not been determined. The best interpretation of the radiate structures is that they represent capsular material surrounding the parasite, analogous to the forms produced after intravascular inoculation, by the acid-fast bacteria and the organism of coccidioidal granuloma.

DISCUSSION

DR. F. B. MALLORY, Boston: We have just had a similar case at the Boston City Hospital, in which lesions resembling early miliary tubercles were found in the spleen in numbers, and in the liver sparingly. The lesions consisted of endothelial cells and giant cells. There was no necrosis. Within the giant cells were radiate bodies, corresponding in every particular with those described and demonstrated by Dr. Wolbach. Against the view that these bodies are parasites, is the fact that in a giant-cell sarcoma that we had in the department a number of years ago many of the giant cells contained spiculated bodies similar to those in these two cases, but somewhat smaller in size.

DR. JAMES EWING, New York: Some years ago, in examining the brain of a case of pernicious malaria, I found in the ganglion cells wreaths and star-shaped structures in astonishing geometrical arrangement, somewhat resembling the bodies described by Dr. Wolbach. Similar structures were afterward found in a case of tuberculous meningitis. These bodies were artefacts, and showed how very peculiar intracellular products may appear. I do not wish, however, to suggest that the bodies described by Dr. Wolbach were not parasitic, as is strongly indicated by their remarkable structure and wide distribution.

DR. S. B. WOLBACH, New York: The stellate or radiate inclusions could not be dissolved by fat solvents, acids or alkalies, and their constant occurrence in giant cells, in widely distributed lesions, is more in favor of their parasitic nature than is the morphology. I admit that the morphology was unsatisfactory, but the fact that similar bodies have not been seen in the experience of well-known pathologists augurs against the possibility of the inclusions' being deposits or artefacts. Moreover, they occurred in formalin-fixed tissues, as well as in Zenke-foxed material, and, therefore, were not like the structures described by Calkins and Gaylord, and attributed to corrosive-sublimate crystals.

Marriages

ARTHUR S. MONZINGO, Tacoma, to Miss Bernice Green, of Boise, January 12.

CHARLES V. WADLINGER, M.D., to Miss Ethel M. Moore, both of Pottsville, Pa., January 14.

CHARLES JOSEPH DILLON, M.D., to Miss Helen Walsh, both of New York City, January 12.

THOMAS MACRAE, M.D., to Miss Emma Dean Fordyce, both of New York City, January 18.

HAROLD K. MOUSER, M.D., Fort Wayne, to Miss Fay Strother, of Latty, Ohio, recently.

HARRY HAZLETON PENQUITE, M.D., to Miss Hazel Owens, both of Colfax, Iowa, January 13.

EDWIN AYRES KELLEAM, M.D., to Miss Ophelia Everidge, both of Grant, Okla., December 22.

EDWARD B. PRIES, M.D., El Paso, to CLOTILDE C. JACQUET, M.D., of New Orleans, January 26.

A. J. EVANS, M.D., to Miss Blanche Lefler, both of Elida, N. M., at Portales, N. M., January 7.

THOMAS DEVEAUX HALL, M.D., to Miss Geneva Telene Olson, both of Elliott, Miss., October 5.

ERNEST R. MIDDLETON, M.D., Winters, Texas, to Miss Edith Fred of San Marcos, Texas, January 10.

JOSEPH WASHINGTON GOLDSMITH, M.D., Brooklyn, N. Y., to Miss Julia Moog of Chicago, January 18.

MORT W. WAFUL, M.D., Waurika, Okla., to Miss Katherine Ethel Hudler, of Wilton, Iowa, January 13.

JAMES ARTHUR ATTRIDGE, M.D., to Miss Florence Ella Sparrow, both of Harbor Beach, Mich., December 8.

EDWARD VICTOR VALZ, M.D., U. S. Navy, to Mrs. Charles Noble Wrenshall, at Pittsburg, Pa., December 29.

ERNEST ALBERT JENKINSON, M.D., Sioux City, Iowa, to Miss Evarista Ryan Mullally of Jackson, Neb., at St. Louis, January 5.

Deaths

Ellery Denison, M.D. New York University, New York City, 1853; a member of the American Medical Association, and of the Mayflower Society; school trustee for eighteen years and examining surgeon of enrollment in New York City in 1861; from 1855 to 1865 attending physician to the Northern Dispensary for the Diseases of Children, New York City, and for twenty-two years thereafter attending physician to the Home for Aged Men and Cripples; died at his home in New York City, January 13, from gastritis, aged 82.

Andrew Moses Moore, M.D. University of Pennsylvania, 1869; a member of the American Medical Association; who entered the Navy in 1869, served eleven years and eleven months at sea, and twelve years and one month on shore duty; for several years on duty at the Naval Recruiting Rendezvous, Chicago; and was retired with the rank of lieutenant commander Aug. 14, 1893, on account of incapacity resulting from incident of service; died in Naples, Italy, January 12, from pneumonia, aged 64.

W. Frank Haehnlen M.D. University of Pennsylvania, 1882; professor of obstetrics in the Medico-Chirurgical College of Philadelphia, and head of that department for fourteen years; obstetrician to the Medico-Chirurgical Maternity and gynecologist to the Philadelphia General Hospital; formerly lecturer and instructor in obstetrics at the University of Pennsylvania and physician-in-chief and gynecologist to the Samaritan Hospital; died at his home in Philadelphia, January 14, from pneumonia, aged 50.

John H. Ewing, M.D. Jefferson Medical College, 1877; formerly a member of the Medical Society of New Jersey, and president of the Hunterdon County Medical Society; local pension examiner, and county physician; surgeon to the Lehigh Valley Railroad, and to the Hunterdon county jail; a member of the original commission and president of the board of managers of the New Jersey State Village for Epileptics, Skillman's; died at his home in Flemington, January 12, from neuritis, aged 56.

George L. Bowman, M.D. University of Wooster, Cleveland, 1878; a member of the Ohio State Medical Association; health officer of Black River township, pension commissioner, township trustee, clerk of the township board, and clerk of the board of education; for more than 30 years a practitioner of Lorain; died in Dr. Frederick's Hospital in that city, January 9, from angina pectoris, aged 56.

Joseph H. Chandler, M.D. Jefferson Medical College, Philadelphia, 1860; formerly a member of the American Medical Association; surgeon of the Fifth Delaware Volunteer Infantry during the Civil War; ex-president of the Delaware State Medical Society; said to have been the oldest practitioner in the state; died at his home in Wilmington, January 14, from heart disease, aged 70.

James Thomas Green, M.D. University of Alabama, Mobile, 1860; of Green Springs, Fla.; surgeon of the Third Alabama Infantry, C. S. A., during the Civil War; in 1898 city physician of Tampa, Fla.; formerly local surgeon of the Plant System and Atlantic Coast Line; died at the home of his daughter in Tampa, January 8, from arteriosclerosis, aged 75.

Jesse Leeka, M.D. Physio-Medical College of Indiana, Indianapolis, 1878; a veteran of the Civil War; at one time coroner of Howard county, Ind.; and afterward postmaster, police magistrate, justice of the peace, township clerk, and village clerk of Oakwood, Ill.; died at his home in that place, January 4, from senile debility, aged 79.

Francis Meigs Thomas, M.D. University of Louisville, 1893; of Leonardville, Kan.; surgeon of the federal penitentiary, Fort Leavenworth, Kan., from 1896 to 1900, and from 1901 to 1906; and afterward a resident of Asherton, Texas; died in the Southern Pacific station, San Antonio, Texas, January 12, from heart disease, aged 39.

William Bascom Davis, M.D. Missouri Medical College, St. Louis, 1880; local surgeon of the Chicago and Great Western Railway, at St. Joseph, Mo.; for eight years physician of Buchanan county, and for two years city physician of St. Joseph; died at St. Joseph's Hospital, January 5, from cerebral hemorrhage, aged 54.

John Hanson Wheeler, M.D. Kentucky School of Medicine, Louisville, 1855; a veteran of the Mexican and Civil wars; formerly superintendent of the Masonic Widows' and Orphans' Home, Louisville, and a member of the city council; died at the Church Home and Infirmary, Louisville, January 8, from senile debility, aged 83.

Abner Duell Thomas, for two years a student at the University of Michigan; afterward assistant surgeon of Illinois volunteers, and later surgeon of the Third Arkansas Volunteer Cavalry during the Civil War; died at his home in Little Rock, Ark., December 21, from tetanus due to a machinery accident, aged 70.

John Jacob Prevaux, M.D. Harvard Medical School, 1898; a member of the Massachusetts Medical Society; representative from Amesbury to the state legislature from 1890 to 1894; and senator from the fourth Essex District in 1896 to 1897; died at his home in Haverhill, January 6, from cerebral hemorrhage, aged 52.

Samuel Creed Gholson, M.D. Hampden-Sidney College, Medical Department, Richmond, Va., 1851; surgeon in the Confederate Service during the Civil War; formerly a member of the Mississippi State Medical Association; died at his home in Holly Springs, January 15, from cerebral hemorrhage, aged 82.

Peter Ellsworth Triem, M.D. Hahnemann Medical College, Chicago, 1881; for many years a practitioner of Manchester, Iowa, and a member of the faculty of the College of Homeopathic Medicine of the State University, Iowa City; died at the home of his son in Seattle, Wash., December 31, aged 59.

Orlando Clark Irvin, M.D. Bellevue Hospital Medical College, 1881; a member of the State Medical Association of Texas; visiting physician to the Providence Hospital and Hotel Dieu, El Paso; for many years division surgeon of the Santa Fe System; died at his home, January 13, aged 62.

Edwin L. Yarletz, M.D. Eclectic Medical Institute, Cincinnati, 1874; district surgeon of the Union Pacific Railroad; chairman of the Western Nebraska District Pension Examining Board, and city physician of Lodge Pole; died at his home in that city, December 16, aged 58.

Frederick Samuel Buckingham, M.D. College of Physicians and Surgeons, New York City, 1871; a member of the American Medical Association; for many years a practitioner of law in New York City; died at his home in Lakewood, N. J., January 9, from angina pectoris, aged 60.

T. Norwood Watts, M.D. Eclectic Medical Institute, Cincinnati, 1887; a veteran of the Civil War; for two years clerk of Wabaunsee county, Kan.; and a resident of Alma for nearly thirty-five years; died at his home in Topeka, December 23, from pneumonia, aged 73.

Alfred Joseph Horowitz, M.D. Long Island College Hospital, Brooklyn, 1906; of New York City; died in a hotel in Newark, January 2, from the effects of cyanid of potassium, self-administered, it is supposed with suicidal intent, while suffering from melancholia, aged 28.

Howson White Cole, M.D. Jefferson Medical College, 1854; a member of the Medical Society of Virginia; surgeon in the Confederate service during the Civil War; thrice mayor of Danville; died at his home in that city, January 8, from senile debility, aged 79.

Francis E. Minshull, M.D. New York Medical College and Hospital for Women, New York City, 1893; of Brooklyn, N. Y.; for many years physician to the Women's Memorial Hospital; died in Galilee, Pa., December 23, from cerebral hemorrhage, aged 56.

Duke William Goodman, M.D. Tulane University, 1891; acting assistant surgeon U. S. P. H. and M.-H. Service at the United States Consulates at Bluefield, Nicaragua, and Port Limon, Costa Rica; died at his home in Mobile, Ala., January 11, aged 55.

Thomas J. Shaw, M.D. Rush Medical College, Chicago, 1880; for twenty years assistant demonstrator of anatomy and clinical assistant to the professor of gynecology in his alma mater; died at his home in Chicago, January 20, from senile debility, aged 68.

Dwight Reuben Bement, M.D. Eclectic Medical Institute, Cincinnati, 1878; a veteran of the Civil War; of Mount Ayr, Iowa; died suddenly in a livery barn in that city, January 10, from heart disease, after making a professional call, aged 70.

Joel Barnett Gresham, M.D. Medical College of the State of South Carolina, Charleston, 1845; for many years health officer of Clay county, Miss., and of West Point; died at his home in that place, December 30, from pneumonia, aged 85.

Fred Robert Disney, M.D. College of Physicians and Surgeons, Chicago, 1907; a member of the Oklahoma State Medical Association; formerly of Chicago; died at his home in Pocasset, Okla., December 25, from pneumonia, aged 31.

Henry J. Coleman, M.D. New York Homeopathic Medical College, 1861; of Lorman, Miss.; a surgeon in the Confederate service during the Civil War; died suddenly January 16, at his plantation home near Port Gibson, Miss., aged 77.

Frank E. Stipp, M.D. Louisville Medical College, 1894; a member of the Indiana State Medical Association, secretary of the Lawrence County Board of Health; and health officer of Bedford; died at his home, January 4, aged 37.

William Davis Harelson, M.D. Memphis Hospital Medical College, 1897; a member of the Louisiana State Medical Society and of the East Baton Rouge Parish School Board; died at his home in Comite, January 9, aged 40.

Gawn Shaw Cleland, M.D. University of Toronto, 1882; Trinity Medical College, Toronto, 1890; a member of the British Medical Association; died at his home in Riverdale, Toronto, January 3, from tubercular laryngitis, aged 51.

Otto Fikenscher, M.D. Barnes Medical College, St. Louis, 1897; of Sibley, Ill.; a member of the American Medical Association; died at the home of his parents in Lohman, Mo., January 6, from pneumonia, aged 37.

John Jethro Sherman, M.D. Rush Medical College, 1881; for forty-five years a practitioner of Marinette, Wis., and mayor of that city in 1896; died at his home, January 9, from hemorrhage of the stomach, aged 79.

Robert H. Grinstead, M.D. University of Louisville, 1853; for many years a practitioner of Glasgow, Ky.; died at the home of his daughter in Munfordville, Ky., January 15, from senile debility, aged 80.

M. Francis Leary, M.D. Tulane University, 1873; hospital steward in the Army during the Civil War and acting assistant surgeon for three years; died at his home in Gaylord, Kan., January 13, aged 63.

Emmanuel Church (license, West Virginia, years of practice, 1870); for nearly 50 years a practitioner of Wyoming county, W. Va.; died at his home in Pineville, October 26, from heart disease, aged 70.

Theophilus M. Lewis, M.D. University of Louisville, 1856; formerly of Stanford, Ky.; died in the Eastern Kentucky Hospital for the Insane, Lexington, December 26, from senile dementia, aged 79.

English John Warth, M.D. Bellevue Hospital Medical College, 1879; for many years a practitioner of Nevada, Mo.; died at his home in Price, Utah, December 26, from arteriosclerosis, aged 77.

John Bogardus Hill, M.D. Harvard Medical School, Boston, 1852; a member of the Massachusetts Medical Society; died at his apartments in Boston, December 9, from cerebral hemorrhage, aged 82.

Joseph A. McFerren, M.D. Jefferson Medical College, 1847; formerly a member of the Delaware State Medical Society; died at his home in Laurel, Del., January 8, from senile debility, aged 82.

Jesse Lee Worley, M.D. Eclectic Medical Institute, Cincinnati, 1877; formerly a councilman of Washington, Ohio; died at his home in that city, January 6, from cerebral hemorrhage, aged 58.

Andrew Jackson Davis, M.D. United States Medical College, New York City, 1883; of Roxbury, Boston; died at his home in Watertown, Mass., January 13, from senile debility, aged 83.

B. H. Padgett, M.D. Medical College of the State of South Carolina, Charleston, 1881; warden of Walterboro, S. C., for several years; died at his home, January 9, from pleurisy, aged 53.

George Edwin Allen, M.D. Medical School of Maine, Brunswick, 1883; a member of the Massachusetts Medical Society; died at his home in Haverhill, January 8, from myocarditis, aged 46.

Edwin Hinckley (license, Washington, registration, 1887); of Toledo, Wash.; died at the Western Washington Hospital for the Insane, Fort Steilacoom, January 2, from uremia, aged 74.

Charles Benjamin Hollifield, M.D. University of Louisville, 1891; of Port Arthur, Texas; while making a professional call in that city, January 13, died from angina pectoris, aged 43.

Sidney Mosher (license, Iowa, 1887, 25 years practice); a physio-medical practitioner of Sioux City for nearly thirty-five years; died at his home January 12, from heart disease, aged 74.

John Drake Chambers, M.D. University of Michigan, Ann Arbor, 1874; a pioneer practitioner of Fort Wayne, Ind.; was found dead in his office, January 13, from pericarditis, aged 65.

Edward H. Horner, M.D. University of Pennsylvania, 1855; surgeon of volunteers during the Civil War; died at his home in Turbotville, Pa., January 10, from senile debility, aged 78.

Flora S. Gleason, M.D. State University of Iowa, College of Homeopathic Medicine, Iowa City, 1882; died at her home in Corona, Cal., January 7, from angina pectoris, aged 59.

James Lockhart, M.D. University of Nashville, 1858; surgeon in the Confederate Service during the Civil War; died at his home near Advance, Mo., January 9, aged 83.

Benjamin Franklin Syman, M.D. Denver and Gross College of Medicine, 1906; of Denver; died in that city, January 12, after an operation for appendicitis, aged 25.

Joseph Freeman Thompson, M.D. University of Virginia, Charlottesville, 1889; died at his home in Lexington, Ky., November 21, from heart disease, aged 42.

Edwin A. Harris, M.D. Atlanta (Ga.) Medical College, 1887; a member of the Medical Association of Georgia; died at his home in Midville, January 11, aged 42.

Gabriel F. M. Cummings, M.D. Georgia College of Eclectic Medicine and Surgery, Atlanta, 1889; died at his home in Rockmart, Ga., January 8, aged 49.

John Baptist Knoebel (license, Ill.); a practitioner for nearly fifty years; formerly of Highland, Ill.; died at his home in Manitou, Colo., January 1, aged 77.

A. C. Edwards, M.D. University of Louisville, 1857; one of the oldest practitioners of Meridian, Miss.; died at his home January 10, from paralysis, aged 80.

Russell P. Pelton, M.D. Western Reserve University, Cleveland, 1893; died at his home in Vermilion, Ohio, January 9, from pneumonia, aged 41.

William Alva Walton, M.D. Vanderbilt University, Nashville, 1881; died at his home in Henrietta, Tenn., January 1, from dropsy, aged 55.

Julius O. Dorsey, M.D. University of Maryland, 1863; died at his home near Parker's Landing, Md., January 4, from pneumonia, aged 67.

Abram C. Moore, M.D. Starling Medical College, Columbus, 1850; died at his home in Wyoming, Cincinnati, January 7, aged 83.

William Henry Dent, M.D. Miami Medical College, Cincinnati, 1890; died at his home in Glenwood, Ind., January 4, aged 42.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

KANSAS: State House, Topeka, February 8. Sec., Dr. F. P. Hatfield, Olathe.

NEBRASKA: State House, Lincoln, February 9. Sec., Dr. E. Arthur Carr, 141 S. 12th Street.

NEW YORK: Albany, February 1-4. Chief of Examinations Division, Dr. Charles F. Wheelock.

WYOMING: State Capitol, Cheyenne, February 16-18. Sec., Dr. S. B. Miller, Laramie.

Simple Refraction Required in Vermont

Dr. W. Scott Nay, secretary of the Vermont State Board of Medical Registration, says that the board voted Jan. 11, 1910, not to receive for examination after Jan. 1, 1911, any applicant who has not received instruction in simple refraction.

Indiana Board Adopts Higher Requirements

Word has just been received from Dr. W. T. Gott, secretary of the Indiana State Board of Medical Registration and Examination, that at a meeting of the board, held January 12, it was voted to increase the minimum requirement for entrance to medical colleges to two years of collegiate study in addition to a four year high school education. This ruling will affect all students matriculating subsequent to Jan. 11, 1910, who expect to practice medicine in Indiana, and will be enforced for all applicants after January, 1914.

This action by the Indiana board indicates that they do not intend to discriminate against the graduates of their own state university medical school. There are now three state boards which have adopted the requirements of two years of collegiate work as the minimum requirement of preliminary education, thus supporting their state university medical schools, the other two being the boards of Minnesota and North Dakota. This makes seven boards requiring preliminary education in advance of high school work. Besides the three boards requiring two years of collegiate work there are four requiring one year, Connecticut, South Dakota, Colorado and Kansas.

Connecticut Homeopathic November Report

Dr. E. C. M. Hall, secretary of the Connecticut Homeopathic Medical Examining Board, reports the written examination held at New Haven, November 9, 1909. The number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 3, all of whom failed. The following colleges were represented:

FAILED			
College		Year Grad.	Per Cent.
Hahnemann Med. College and Hospital, Chicago		(1909)	71.8,* 73.2*
Atlantic Medical College, Baltimore		(1909)	69*

* Failed also at July 1909 examination.

Idaho October Report

Dr. W. F. Howard, secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Boise, Oct. 5-6, 1909. The number of subjects examined in was 11; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 44, of whom 27 passed and 17 failed. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
University of Colorado	(1906) 75; (1909) 80,	80.8
Rush Medical College	(1894) 76.5; (1896) 78.8; (1906) (1907) 87.	86.8;
Northwestern University Med. School	(1904) 88.8; (1909)	76.7
College of Physicians and Surgeons, Chicago	(1905)	82.4
College of Physicians and Surgeons, Keokuk	(1897)	76.3
Hospital College of Medicine, Louisville	(1901)	75
College of Physicians and Surgeons, Baltimore	(1906)	80.1
Detroit College of Medicine	(1907) 76.3; (1909)	83.5
University of Minnesota	(1904)	82.2
Barnes Medical College	(1898) 75.6, 77.3; (1906)	76.5
University Medical College, Kansas City	(1903)	80
St. Louis University	(1904)	75.3
Starling Medical College	(1901)	75.3
Eclectic Medical Institute	(1900)	79.9
University of Oregon	(1909)	80.7
Medico-Chirurgical College, Philadelphia	(1898)	81
Chattanooga Medical College	(1903)	75
Queen's University, Ontario	(1909)	77.8

FAILED		
University of Colorado	(1890)	66.3
Bennett Medical College	(1907)	50.4
Northwestern University Med. School	(1876) 60.9; (1909)	71.5
University of Kansas	(1907)	66.4
Michigan College of Medicine and Surgery	(1898)	60.3
American Medical College, St. Louis	(1892)	43.6
St. Louis University	(1905)	46.4
Kansas City Hahnemann Medical College	(1909)	71.5
Woman's Medical College, Kansas City	(1901)	71.6
Barnes Medical College	(1896) 72.9; (1907) 68.2; (1908)	62.7
Long Island College Hospital	(1876)	53
Eclectic Medical Institute, Cincinnati	(1897)	66.5
Tennessee Medical College	(1907)	45.3
University of Nashville	(1902)	62.3

West Virginia November Report

Dr. H. A. Barbee, secretary of the West Virginia State Board of Health, reports the written examination held at Parkersburg, Nov. 9-11, 1909. The number of subjects examined in was 20; total number of questions asked, 120; percentage required to pass, 80. The total number of candidates examined was 27, of whom 24 passed and 3 failed. The following colleges were represented:

PASSED		
College	Year Grad.	Per Cent.
Georgetown University	(1908) 89; (1909) 90, 92,	94
Howard University	(1907) 87,	87
Maryland Medical College	(1903) 88; (1909) 82, 87, 90,	90
Louisville and Hospital Medical College	(1908)	81
Hospital College of Medicine, Louisville	(1907)	86
University of Louisville	(1908) 81; (1909)	93
Baltimore Medical College	(1908)	84
College of Physicians and Surgeons, Baltimore	(1908)	83
Leonard School of Medicine	(1909)	87
Medico-Chirurgical College, Philadelphia	(1905)	85
Western Pennsylvania Medical College*	(1907)	93
University of Pittsburg	(1909)	89
Ohio Medical University	(1902)	86
Chattanooga Medical College	(1909)	83
University of Nashville	(1909)	91

FAILED		
University of Louisville	(1908) 74; (1909)	78
Chattanooga Medical College	(1909)	77

* Now the University of Pittsburg, Medical Department.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF ORGANIZATION, POSTGRADUATE WORK, CONTRACT PRACTICE, INSURANCE FEES, LEGISLATION, ETC.

How Physicians Look to the Public

From time immemorial physicians have considered it one of their unquestioned prerogatives to lecture the public on the relation which exists or should exist between the medical profession and the laity. Turn about is not only fair play, but a very profitable form of exercise, since it is not only right but just that we should know how the people regard us and in what way we fail to satisfy them. Two articles recently published in the *British Medical Journal* on "The Relations of the Laity and the Medical Profession" by Mrs. Hodgkinson, editor of the *British Health Review* are, therefore, not only interesting, but may be read with profit by American physicians, as well as by our British brethren.

Mrs. Hodgkinson disclaims the need of apologizing for erroneous opinions "since mistakes are often highly instructive and candor offers an opportunity for criticism and enlightenment likely to be extremely useful to all concerned." Commenting on the changing attitude of the public toward the profession and the fact that the more far-sighted members of the profession have already recognized this change, she says: "The unreasoning part of the public—equally dissatisfied—betakes itself to the 'patent medicines' so admirably analyzed and expounded in a recent publication of the British Medical Association, and, in view of the sums thus spent, no one will, I think, contend that this is an inconsiderate body." Regarding the better informed minority which, she states, is acquainted with the advance which is taking place in the profession and conscious of the limitations of modern medicine, it, she says, "is convinced that its best hope lies in the recognition by profession and public of the fact that their relations must be progressive and therefore subject to change."

This admirable statement of the present case is worthy of serious consideration. The relations existing between the medical profession and the public are certainly changing and will continue to change. We cannot go back to the conditions of our forefathers, neither can we prolong indefinitely the present-day situation. Change and progress is sure to occur and it behooves us to foresee the change and adapt ourselves to it, rather than to ignore it or oppose it, and thereby to suffer.

Discussing the relations between the physician and the average man who, Mrs. Hodgkinson states, "is brought up in complete ignorance of the laws of health or the natural needs of his body," her first criticism is that the medical profession, a body of immense social and legal weight, has made no organized protest against the absence of sound training on health matters in the schools and that it has not attempted to establish clinics for the study of the criminal, feeble-minded, or insane, but has left to the laymen the work of pushing forward and in some cases of remedying such evils. Mrs. Hodgkinson draws an analogy from history in the failure of the clergy to take the lead in needed reforms: "In certain stages of history, ecclesiastical authorities, too, have refused their rightful position as leaders of reform, and the tide of vital affairs has ebbed and left them stranded. An example and a warning not to be neglected."

After commenting on the cynicism of public opinion, which considers that the physician's interest in the patient begins and ends with his disease, she continues: "The thinking laity believes that the time is approaching for more revolutionary methods and that there are measures, now denounced as socialistic, which would reconcile these conflicting interests and secure the doctor's pecuniary position on the health and not on the disease of the community." Treatment of symptoms instead of causes and lack of careful examination by physicians is also commented on. Mrs. Hodgkinson also holds that the medical profession "has blindly and almost unpardonably neglected the study of dietetics in health and disease." She also complains of the morbid dread of responsibility into which excessive specialization forces its devotees, using the history of the treatment of appendicitis in the last ten years as an illustration. Much more to the point is her criticism that extreme specialization works a hardship on those who are poor in purse, in illustration of which she gives the following: "A patient, having weathered through an intestinal operation, was tortured with facial neuralgia. In quavering tones, he mentioned the matter to the surgeon, and was blandly repulsed. 'My dear sir, I know no more about neuralgia than you do. You must call in a physician if you want advice.' But he could not, poor man, for the operation and the nursing home had absorbed all his small means, and he therefore endured the neuralgia as best he could until he left the house, and, hastening to the nearest chemist, provided himself with the best advertised bottle available. It wrought an almost immediate cure and, for aught I know, considerable future damage."

As a remedy for such conditions, Mrs. Hodgkinson suggests that some means be devised by which the surgeon and physician could cooperate, "arranging the financial boundaries between the high contracting parties" so as to insure to the patient the care to which he is entitled. "But," she asks, "need the specialist be quite so ignorant? Is it not partially a pose, or idleness, or hedging, or self interest?"

The second article is devoted to a discussion of the vexing question of fees, which she says she approaches with trembling, "well aware that our advisers must live." She begs to remind physicians, however, that patients also must live and in a double sense, where they are concerned. She frankly says that she considers surgical fees too high, positively declining as an offset "to waste space in eulogizing the charity of many medical men, as it needs no praise, for it is known and respected. But," she says, "suppose we imitate the unemployed and say: 'Curse your charity; what we want is a lower and more definite scale of fees.'" She particularly pleads for some kind of a standard, claiming that at present "Sir Pompey Partington may demand £150 for a snip which Mr. Cutler Walpole may willingly perform for half the money," and that it is impossible to tell when a patient enters the consulting room what drain may be made on his resources. The patient naturally wants to live and for the sake of his family if not for himself, wishes to be treated by the best skill obtainable. With the present lack of standards and with almost unlimited variation in charges, a patient never knows how much the unavoidable surgical treatment is going to cost him.

In comparison to the surgical fee which "must be paid too quickly," however, is that of the general practitioner "which is paid too slowly." Mrs. Hodgkinson makes a strong and sensible argument for physicians' bills regularly rendered and properly itemized, summing up the entire matter thus: "The thrifty public would certainly prefer bills more frequent, and above all, more detailed. Honestly, would not the profession prefer them also? And if not, why not?"

The weakest portion of the two articles is that devoted to the discussion of advertising. Here, as in almost all of the popular discussion of this subject, Mrs. Hodgkinson misses the point entirely, devoting herself to a consideration of the apparent inconsistency of the position of the profession on this question. This is not strange, since correspondence or conversation with any number of physicians will show that very vague ideas on this subject exist within the profession as well as without it. Yet the entire question can be summarized in a few words. The medical profession objects and has objected from time immemorial to any means of self-exploitation which is untrue or ill-bred. Its objection to the vast majority of advertisements of so-called "specialists" is that they are untrue and every competent physician knows that they are. The objection which the cultured physician has to the methods of the man who plasters his house with signs and mechanical devices to attract attention is that such methods are not those of a gentleman. Apply these two tests to the advertising problem and the entire situation is clarified. Mrs. Hodgkinson fears that the physician or surgeon who writes a book for the instruction of the public on hygiene is in danger of professional condemnation. This depends entirely on the purpose of the book and the manner in which it is written. If it is honestly intended for public education and not for self-exploitation, and if the statements therein are a truthful, unexaggerated summary of the proved and accepted knowledge of the profession on the subject, then there are no grounds for criticism, but only praise. The physician who writes a book for the public as a means of self-aggrandizement or to make himself prominent in the public eye, is insincere and therefore untruthful. Yet while this is true, Mrs. Hodgkinson's ideas on this subject are worthy of repetition. "Far from joining in the condemnation of those who attempt to enlighten us, we fail to understand why it should not be a test of what is best and greatest in the profession to be a successful teacher of the laity in matters which concern them. This is one of the functions of the true physician and one which the future will demand and to stigmatize it as self-advertisement, while permitting more indirect but more lucrative forms of advertisement savors of injustice, which finds no response from us."

All of which is perfectly true, provided the work is done sincerely, and to benefit the reader and not the writer.

Equally interesting are her forecasts. The ideal which she holds is state payment of the profession which "is bound to come, so excellent has been the work done by the medical officer of health, and so clearly are indicated the opportunities for that thoroughly organized and systematic campaign against disease so absolutely impossible under obtaining conditions." The conception of the physician as a state health-officer, while savoring of socialism to some, is yet deserving of careful consideration.

The comparison established here between the work of the state health officer and that of the private practitioner is also worth considering. Obviously, if the future brings about such a competition, the state health officer, armed with the authority and support of the state, will have a decided advantage over the private practitioner whose authority will be purely personal and who must earn his own living and collect his own fees. In the meantime, as Mrs. Hodgkinson says, the orthodox medical man is heavily handicapped. We do

not often consider the additional fact, however, which she further emphasizes, that "this handicap reacts on the patient, who is courted far more than is good for him." It would be interesting to speculate on the possibilities afforded by the future, when physicians have increased and disease decreased to the point where a sick person will be eagerly sought after and solicited by a number of physicians. Particularly suggestive in the light of the recent experience of medical organization in this country, are her comments regarding medical education, with which she says the public mind is dissatisfied, believing that the average medical man "is either unable or unwilling to keep step with the progress of modern science, which affects his work more rapidly and profoundly than it perhaps does any other." As a remedy, she proposes compulsory postgraduate courses but admits that it is difficult to see how these could be adapted to the needs of the struggling practitioner and suggests the possibility of the organization of a state medical service which might be of assistance in this particular. Apparently, the idea of organization of the medical profession itself for its own improvement and for the solution of this and other problems does not occur to her as a possible solution.

No doubt the difference in political conditions in Great Britain is partially responsible for this since many matters can be uniformly regulated by Act of Parliament in Great Britain which cannot be so disposed of in this country. Mrs. Hodgkinson voices the spirit of the times as well as the hope of the future in her closing expression of belief that "the bonds which unite the profession and the public may and must be strengthened, since the future will differ from the past most materially in the fact that we shall not so much call on the physician to rescue us from the disastrous consequences of our own and others' ignorances and follies when the harm is done, as to instruct and safeguard us in the ways of health and right living."

That this is the task of the physician of the future, no one will deny. On the contrary, we will all agree with Mrs. Hodgkinson that the possibilities of such a future are infinite. A clear picture of the ultimate goal of the profession, however, does not in any way help to solve the perplexing questions of the present nor determine how the transitional stage shall be passed through, with the least possible discomfort to the individual physician and patient; or how, in order to gain the ultimate good, we can best follow the advice of Saint Paul, to "prove all things, hold fast that which is good."

Mrs. Hodgkinson's articles are most interesting, whether we accept all her conclusions or not, and the example of the *British Medical Journal* of giving space to such a criticism of the profession is to be commended.

POSTGRADUATE COURSE FOR COUNTY SOCIETIES

DR. JOHN H. BLACKBURN, DIRECTOR
BOWLING GREEN, KENTUCKY

[The Director will be glad to furnish further information and literature to any county society desiring to take up the course.]

Sixth Month—Second Weekly Meeting

SURGERY OF THE LIVER

INJURIES OF THE LIVER: Character and extent of wounds. Symptoms. Treatment. Indications for laparotomy. Control of hemorrhage. Technic of suture of liver.

ABSCESS OF THE LIVER: (a) Tropical, solitary, amebic, abscess. Diagnosis, septic symptoms, pain, enlargement of liver. (b) Pyogenic abscess. Multiple after suppurative pylephlebitis, appendicitis, etc. Single after injuries, wounds, ulcerations, etc. Surgical treatment. Indications for exploratory aspiration. Abdominal incision. Transpleural incision. Combined abdominal and transpleural incision.

CIRRHOSIS (ATROPHIC) OF THE LIVER: History, age, hepatic facies, ascites, hemorrhages. Vessels maintaining "compensatory circulation." Treatment. Indications for surgical treatment. Paracentesis, laparotomy and epiplopexy; indications for each; technic of each.

Book Notices

ORGANIC AND FUNCTIONAL NERVOUS DISEASES. By M. Allen Starr, M.D., Ph.D., LL.D., Sc.D., Professor of Neurology, College of Physicians and Surgeons, The Medical Department of Columbia University in the City of New York. Cloth. Pp. 897, with 300 engravings and 29 plates in colors and monochrome. Third Edition. Price, $6. Philadelphia: Lea & Febiger, 1909.

In the present edition of this classical work the author has evidently studied with care the needs of both practitioner and student. He arranges his material in four parts. In the first division or general portion of the book methods of examination and diagnosis are fully discussed in conjunction with the necessary anatomy and physiology of the nervous system. The second part covers the great division of organic diseases. In part third functional diseases are given twice the space allotted to the same section in a former edition. The concluding (fourth) part considers diseases of the sympathetic nervous system in the light of recent work in this field.

As the reader opens the book and begins reading, he imagines that he is listening to the author's rugged class-room English—always precise and unadorned by any rhetorical flourishes. In the chapter on "Organic Nervous Diseases," one hears him at his best—in his chosen field. And still the reader is carried along by an unswerving interest until he reaches the chapter on "Functional Nervous Diseases," where he is rudely awakened to the consciousness that the author is on strange territory.

Two errors should be expunged from future editions: 1. On page 730, under the caption of the treatment of trifacial neuralgia the author refers to a new treatment by the injection of three minims of 90 per cent. of alcohol into the branch of the nerve affected. Fortunately, in a footnote, the reader is referred to an original article by Patrick, published in THE JOURNAL (Nov. 9, 1907, p. 1567) in which one can read that the dose is thirty minims of a 75 to 90 per cent. solution of alcohol. 2. On page 739, under Sciatica, is mentioned a new treatment with normal salt solution at a freezing temperature, of which 5 c.c. are injected perineurally. If the author has in mind the method practiced by Lange, Umber, Alexander, Schloesser, Schlesinger, and adopted by American neurologists, the dose given as 5 c.c. should read 50-90 c.c. In neurology as in general medicine, specialties have grown up within specialties. There are those who excel in the diagnosis of thoracic diseases; others, who are brilliant interpreters of obscure abdominal affections, and still others who can make most searching analyses of metabolic disorders. In the specialty of nervous diseases there is no neurologist living since Charcot, with the possible exception of Oppenheim in Germany, whose text-book writings bear the imprint of originality as do Starr's. The book as a whole, therefore, must be pronounced among the best in the English language.

THE CAUSATION OF SEX. A New Theory of Sex Based on Clinical Materials. By E. Rumley Dawson, L.R.C.P., M.R.C.S., Fellow of the Royal Society of Medicine. Cloth. Pp. 196, with illustrations. Price, 6 shillings. London: H. K. Lewis, 1909.

The author's "theory of sex" was first presented to the Obstetrical Society of London in 1900. It is now worked out into a monograph of about 200 pages which contains a considerable collection of reports of various cases which form the clinical basis of the hypothesis. The theory is that the sex of the fetus is not due to the male parent, but depends on the ovary which supplied the ovum that was fertilized; and that a male fetus is due to the fertilization of an ovum from the right ovary and a female fetus is the fertilization of an ovum from the left ovary.

To show that the male parent does not influence the sex of the child a number of instances are given in which a woman has had only girls or only boys by two husbands, while other cases are given in which husbands have had children of different sexes by different wives. To prove that male fetuses are due to the fertilization of ova from the right ovary and vice versa, a number of cases are given in which male or female pregnancies, either intra-uterine or extra-uterine, were found to coexist with a large corpus luteum in the right or left ovary respectively. Cases of pregnancy after ovariotomy are also given to show the same fact.

Dawson meets the objection that sometimes children of both sexes are born after the removal of one ovary by assuming that such removal is not complete. Assuming an alternate action of the ovary the author forecasts, with 97 per cent. of success, the sex of the subsequent child by reckoning from the ovulation month of the last child to the tenth ovulation period prior to the expected birth of the coming child. Numerous examples are given from his own practice and from that of others. It follows that the production of sex at will must consist in avoiding attempts at fertilization in the months in which an ovum of the undesired sex is produced.

The author has presented his arguments well from his chosen standpoint. The theory lacks the foundation of cytologic and biologic studies, the absence of which leaves it somewhat unsatisfactory. The uniformity of favorable cases is also suspicious and leaves the reader in some doubt as to the thoroughness of the search of literature.

THE STEREO-CLINIC. By Dr. Howard A. Kelly, Baltimore, Md. Vol. I., Gynecologic Examination, Hypertrophy, Conglutination, Pessaries, Fibroma. 41 Stereos. Cloth. Price, $10.25. Vol. II., Examination of Bladder and Catheterization of Ureters, Dilatation and Curettage. 45 Stereos. Cloth. Price, $11.25. Vol. III., Perineal Tear, Pelvic Abscess, Dermoid Cyst, Parasitic Myoma, Dysuria. 42 Stereos. Cloth. Price, $10.50. Troy, N. Y.: The Southworth Co.

This work, one of the latest by the well-known author, consists of a series of stereograms or stereoscopic photographs illustrating various gynecologic operations, pathologic conditions and methods of making examinations.

It is recognized by all that the sense of sight is the one through which knowledge is most quickly and easily acquired. By means of these stereograms, Kelly has brought to the library of every surgeon the clinic room and the actual operation so that the various steps of the operation may be studied at leisure.

Instead of trying to catch a hurried glimpse of a rapidly performed operation, one may sit down and view the various steps with almost the realism of the operating-room. These stereograms with their almost perfect perspective are a great improvement over the ordinary illustration, however well the latter may be executed. As the stereograms are taken during the actual performance of the operation, the individuality of the operation is preserved as well as the various steps of the operation illustrated.

A careful study of the pictures with the apparatus furnished is like taking a postgraduate course. Each stereogram is accompanied by just enough text to bring out nicely the points desired to be emphasized.

THE PRINCIPLES OF HYGIENE. By D. H. Bergey, A.M., M.D., Assistant Professor of Bacteriology, University of Pennsylvania. Third Edition. Cloth. Pp. 542, with illustrations. Price, $3. Philadelphia: W. B. Saunders Co., 1909.

Sanitary science and hygiene have made enormous strides during the past few years, owing largely to the knowledge gained in the etiology of diseases. An impetus has been given by many new discoveries in this field to a more detailed study of conditions of the air, and this subject has been ably discussed in the first chapter. Following this in logical sequence are chapters on ventilation and heating, water-supply and sewage disposal. Perhaps no other branch of sanitary science has advanced as rapidly as these, to which the author does full justice.

Food and dieting are taken up from a modern point of view. Physiologic chemistry has advanced our ideas in this respect, and the new movement for pure food has contributed its share to a betterment. The discussions on milk and alcoholic beverages are rather short, but give the desired information as explicitly as possible in such limited space. Exercise, clothing, personal hygiene, etc., are considered in separate chapters.

Of special interest is the chapter on the causes of diseases, the discoveries in this line following each other with such rapidity that it is difficult to keep in touch with the progress of the subject. This problem is discussed most intelligently and as much information is given as the size of the book permits. Closely following are the chapters on disinfection and quarantine. Much attention has been given by sanitarians to these topics, especially to disinfection, and the opinions prevailing among experts are recorded by the author. The closing chapter on vital statistics, and an appendix add much useful information.

SURGICAL DIAGNOSIS. By Alexander Bryan Johnson, Ph.B., M.D., Professor of Clinical Surgery in the Columbia University Medical College. Volumes I. and II. Cloth, with illustrations. Price, $18 per set. Three volumes in set. Sold in sets only. New York: D. Appleton & Co., 1909.

It is seldom that one practices medicine or surgery in any of its branches long without realizing that a correct diagnosis is at once the most important as well as the most difficult part of the art, for when a correct diagnosis of a case has once been made, the most approved treatment is usually not difficult to outline.

The title of this work is too limited, for it deals not only with the question of diagnosis, but contains much that pertains to pathology and occasionally to treatment. This could scarcely be otherwise, however, in a work as comprehensive as this and this feature but adds to its value, for it is almost impossible for one to think of diagnosis without at the same time having pathology in his mind.

There are to be three volumes when the work is completed; Volumes I and II are now ready. Volume I treats of wounds and their diseases; diseases of the soft parts and of the bones; tumors; fractures and dislocations; syphilis; the *x*-rays; the head and neck; thorax and breast and abdomen in general; the peritoneum and injuries of special abdominal organs.

Volume II treats of injuries and diseases of the abdomen and of its contained viscera; the rectum; injuries and diseases of the kidney, the bladder, the prostate, the urethra, penis, seminal vesicles, scrotum, testes and spermatic cord.

The work is profusely illustrated in both color and black and white with almost entirely new cuts. Each volume is provided with an index of authors as well as of subjects.

This excellent work will certainly find favor with all who may read it.

THE PRACTICE OF ANESTHETICS. By Rowland W. Collum, L.R.C.P., M.R.C.S., Anesthetist to St. Mary's Hospital, Paddington, and GENERAL SURGICAL TECHNIQUE, by H. M. W. Gray, M.B., C.M., F.R.S.C., Surgeon and Lecturer on Clinical Surgery, Royal Infirmary, Aberdeen. Edited by James Cantlie, M.A., M.B., C.M., F.R.C.S., Surgeon Seamen's Hospital Society. The Medico-Chirurgical Series No. 1. Cloth. Pp. 382, with 39 illustrations. Price, $3.00 net. New York: William Wood & Co.

This book is one of a series in which medical and surgical conditions are dealt with conjointly. This volume takes up anesthesia and general surgical technic. Part 1 contains a brief review of the history of anesthesia, a consideration of the chemical properties of the various anesthetics, the physiology of anesthesia, preparation of the patient, the selection of the anesthetic for special cases, concluding with the methods of administration of the various drugs and mixtures used, and the after-care of the patient. In Part 2 the author discusses the personal preparation of the surgeon and assistants, the operating room and its equipment, ligatures, suture material, etc., preparation and after-care of the patient, operations in private homes, responsibilities of the surgeon, and common surgical operations which may have to be undertaken by the general practitioner. While not pretentious, the book is full of practical interest and is to be commended.

THOSE NERVES. By George Lincoln Walton, M.D., Consulting Neurologist to the Massachusetts General Hospital. Cloth. Pp. 202. Price, $1. Philadelphia. J. B. Lippincott Co., 1909.

This book, small enough to go in one's pocket, is dedicated to "Those Who Need It." One is surprised as well as amused in turning over its pages to find how many of the keen little paragraphs can be applied to one's own mental and physical states. In a day when there is so much loose talk about the power of the mind over the body, it is refreshing to read something practical and sensible on the power of the individual over the mind. The object of the author, as stated in the introductory chapter is to "promote such peace of mind as may make for health as well as for happiness. In other words, like vaccination, pure milk and disinfection, it aims to prevent." Self-control, freedom from annoyance on account of irritating surroundings, the mental dangers of isolation are discussed, as well as some mental traits for which the author has had to invent a terminology which is none the less easily recognizable. Who, for instance, does not know at the first glance what is meant by "side-trackability," "character-leakage," or "magnification of the unessential?" Two chapters are devoted to various obsessions in which almost any one can find some of his favorite peculiarities graphically but sympathetically portrayed.

Medicolegal

The Medical Practice Law in Oklahoma After the Territory Became a State

The Criminal Court of Appeals of Oklahoma says, in State vs. Harmon (104 Pac. R., 370), that the territorial laws relating to the practice of medicine were not extended and did not remain in force in the state of Oklahoma by reason of section 39, article 5, of the Constitution, which provides that: "The legislature shall create a board of health, board of dentistry, board of pharmacy, and pure food commission, and prescribe the duties of each. All physicians, dentists and pharmacists now legally registered and practicing in Oklahoma and Indian Territory shall be eligible to registration in the state of Oklahoma without examination or cost." This provision of the Constitution was made effective by chapter 70a, article 1, page 7[illegible]a, of the session laws of 1907-'08, the same being entitled: "An act to define and regulate the practice of medicine, to create a board of medical examiners for the examination and licensing of physicians and surgeons, and to prescribe their qualifications; to provide for their proper regulation, and to provide for the revocation of their license; to require itinerant venders to procure a county license, and to fix suitable penalties for the violation of this act, and repealing laws and parts of laws in conflict herewith." This law was approved June 12, 1908, and became effective on the 24th day of August, 1908.

Construction and Validity of Statute Relating to Vaccination of School Children—"Successful Vaccination"

The Supreme Court of Washington holds, in State vs. Shorrock and others (104 Pac. R. 214), that a provision that the boards of directors might make vaccination a necessary condition precedent to attendance on the public schools was clearly within the title of the act of 1897, entitled "An act to establish a general uniform system of public schools in the state of Washington," etc. It says that this provision stands on the same plane as the provisions contained in the act for the exclusion of those afflicted with infectious or contagious diseases, or who reside in houses wherein such diseases are prevalent. In other words, it defines the class of persons who may be permitted to attend the schools created by the act. It is therefore germane to the general subject.

Nor does the court consider the provision in question repealed by the subsequent statute providing for the compulsory education of children. If the latter statute required compulsory attendance on the public schools, the two statutes taken together might require compulsory vaccination, but even in that case there would be no repeal of the former by the latter. The legislature has power to require all minors to attend the public schools, and to require them to be vaccinated before so attending.

Neither is the statute void because it makes no allowance for those physically incapable of vaccination. It is not to be presumed that the legislature intended to require, as a condition of its right to attend the public schools, the vaccination of a child whose condition of health is such that the operation would endanger its life, or injuriously affect it mentally or physically. It is presumed that exceptions were intended in favor of such individuals; and, if the officers having in charge the execution of the statute refuse to recognize an exception in such a case, the courts can be appealed to, to compel such recognition.

A contention that the staute is too indefinite to be capable of enforcement was founded on the fact that it requires "successful vaccination," and no definition of the term is furnished by the statutes. But here, again, the court thinks that the rule of common-sense construction can properly be invoked. The board of directors in question construed the statute to mean that a person was successfully vaccinated when the customary reaction was obtained by the operation, or when three operations had been performed without obtaining reaction. Of course, if the customary reaction follows the operation, there is no question concerning the success of the operation. But if no reaction follows three several operations, it is evident that the individual cannot be vaccinated, and such individual can be held to be either successfully vaccinated, or as one not included within the general language used in the statute. To allow individuals to attend the schools who from their condition of health or causes cannot be successfully vaccinated is not a violation of the statute. This is but a recognition of an exception intended by the legislature, but which was not provided for because not foreseen.

The court finds no objection to the statute itself, or to the manner in which it was being enforced.

Notice Necessary to Inquisitions of Lunacy—Force of Physicians' Certificates

The Supreme Court of Vermont says, in ex parte Allen (73 Atl. R., 1078), that, at common law, an insane person may be temporarily restrained without legal process, and, if need be, in an asylum, if his going at large would be dangerous to himself or to others, preliminary to the institution of judicial proceedings for the determination of his mental condition, and such a restraint does not violate any constitutional provision. When, however, the confinement is permanent in nature, the person thus confined is deprived of his liberty which, in order to be lawful, must be in pursuance of a judgment of a court of competent jurisdiction after such person has had sufficient notice and an adequate opportunity to defend. It is no answer to say the person is insane and consequently notice to him will be useless, for that is assuming as a fact the very thing in question, and which is presumed to be otherwise until proved.

Such notice and opportunity are required by the Constitution of Vermont wherein it reads: "Nor can any person be justly deprived of his liberty except by the laws of the land, or the judgment of his peers." And by the fourteenth amendment to the federal Constitution that no state shall "deprive any person of life, liberty or property, without due process of law."

The Vermont statute contains no specific provision for notice to the alleged insane person of the institution of proceedings for a court of inquiry to ascertain whether he shall be removed to the hospital for the insane as a state charge. But the provisions for a court of inquiry should be construed in the light of the requirements of the principles of the common law, and so construed the insane person is entitled by law to proper notice of such proceedings and an opportunity to be present and defend. That is all that due process of law requires, and consequently the statute in this respect is not unconstitutional.

Just what force as evidence the statute contemplates that the physicians' certificate shall have in hearings of this character is a question not entirely free from doubt. The examination by the physicians is made under certain provisions of the statute, but it is not of a public nature and made under competent authority on behalf of the public to ascertain a matter of public interest. The certificate is not, therefore, a return of the physicians' proceedings and findings to a court to be there acted on in affirmance or disaffirmance, as is generally done when an investigation has been made by an inquisition by virtue of competent authority. Yet an inquisition of lunacy is only presumptive evidencce of insanity, and is traversable as a matter of right by the alleged lunatic, and may be sent to a court of common law to be tried by jury. And the statute respecting the use of the certificate may reasonably be so construed as to make it, like an inquisition of lunacy when traversed, prima facie evidence of the person's insanity.

In this case the court finds that the proceedings of the court of inquiry questioned were a nullity, and that the confinement of Lydia Ann Allen in the state hospital for the insane on the order of that court was illegal, wherefore she would be discharged from such confinement on said order, yet, if she was insane and her going at large would be dangerous to herself or to others, she would not be set at liberty on habeas corpus. In such circumstances it was the duty of the court and within its common-law power resting on public necessity to restrain her until resort could be had to regular and orderly means to place her under permanent legal restraint.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Medical Record, New York

January 15

1 *Pellagra at the Peoria State Hospital, Peoria, Illinois. J. F. Siler and H. J. Nichols, U. S. Army.
2 Practical Method of Obtaining the Duodenal Contents in Man. M. Einhorn, New York.
3 Eye Troubles of Early Life. J. W. Avery, New York.
4 *Interpretation of Clinical Hearing Tests According to the Author's Sensitive Hair Theory of Sound Perception. W. S. Bryant, New York.
5 *Letters to a Neurologist. J. Collins, New York.

1. **Pellagra in Illinois.**—Of 2,150 inmates examined by Siler and Nichols at the Peoria institution, the majority of whom have been almshouse and asylum inmates for many years, 175 were pellagrous during the summer of 1909. No physicians, attendants, or employees were affected. About 70 per cent. of the patients had suffered from previous attacks and pellagra has been prevalent at least 4 years. The average age of the patients was 50 years; the sex distribution was about equal. Attacks were mild (skin symptoms, mild digestive tract symptoms without constitutional reaction) and severe (marked skin and digestive tract symptoms with pronounced toxemia). A diagnosis of pellagra is not warranted in absence of skin symptoms. The symmetry of skin lesions was a most striking feature. When bleb formation occurred the death-rate was high. Digestive tract symptoms were not present in all cases. In some cases diarrhea and stomatitis could be attributed to bad teeth, and infection with amebas and flagellates, but in other cases, the constitutional symptoms pointed to some additional specific poison. Patellar and plantar reflexes were abnormal in about three-fourths of the cases, usually increased. It was impossible to determine the exact extent of mental disturbance attributable to pellagra, as all patients were insane before the disease was recognized. The patients developed no suicidal tendencies. In mild cases the patients recovered without therapeutic aid. In severe cases they were not much benefited by Fowler's solution, atoxyl or thyroid tablets. Examination of the feces showed in 84.8 per cent. of the cases protozoal infection (amebas, flagellated and encysted forms). These protozoal infections account in part for the intestinal symptoms and are believed to be a predisposing factor. In 18 autopsies, well-marked ulcerations of the colon were found in 12 cases, and folliculitis occurred in all. No other organ showed any striking alteration. Cultures of blood, spinal fluid and spleen pulp were uniformly negative. The disease impressed the authors as an intoxication rather than an infection. Not more than two ounces of corn were eaten daily; no evidence was obtained of the use of spoiled corn. The possibility of an intoxication from bacterial action on corn products in a damaged intestine is considered the most promising field for study.

4. **Interpretation of Clinical Hearing Tests.**—In diseases of the cochlea, when there is only a quantitative impairment and not loss of high tone perception, Bryant maintains that the lesions of the cochlea must be localized. When, however, there is a total loss of perception of high tones from cochlear involvement, the author interprets this absence of high tone perception as due to a lesion which is diffused throughout the extent of the scala media.

5. **Letters to a Neurologist.**—Collins supposes himself to receive a letter from a worldly, selfish woman, who has exhausted all sorts of pleasure, and now, at 43, finds herself a prey to *ennui*, supposing herself to be sick. He answers her by trying to direct her to live for others instead of herself, to endeavor to aid some of the great endeavors of the day to better the conditions of the masses, and in this to find a happiness that the mere pursuit of pleasure cannot bring.

Boston Medical and Surgical Journal

January 13

6 Test Diet, Nitrogen and Sulphate Partitions as an Aid to Diagnosis in Intestinal Disturbances. J. M. Lynch, Hoboken, N. J.
7 Antityphoid Inoculation Conducted by Massachusetts General Hospital. L. H. Spooner, Boston.
8 Reproduction of Pain as a Means of Making Differential Diagnosis. H. T. Hutchins, Boston.
9 Opsonic Therapy in Pyorrhea Alveolaris. L. S. Medalia, Boston.
10 Crotalin; An Improved Method for its Administration. T. J. Mays, Philadelphia.

New York Medical Journal

December 15

11 *Presence of Acid-Fast Bacteria in Distilled Water. R. C. Rosenberger, Philadelphia.
12 Present Status of United States Army Nurse Corps. C. Lynch, Washington, D. C.
13 Private Nurses and Nursing: Recommendations for their Betterment. T. E. Satterthwaite, New York.
14 Successful Experiment in Educating Efficient Nurses for Persons of Moderate Income. W. O. Stillman, Albany, N. Y.
15 An International Educational Standard for Nurses. Mrs. H. Robb, Cleveland.
16 Factors of Mortality in and the Complications of Gastro-enterostomy. C. G. Cumston, Boston.
17 *Bacterial Vaccines in Acute Rheumatism. G. A. Persson, Mt. Clemens, Mich.
18 Educational Responsibilities of a Milk Depot. I. S. Wile, New York.
19 Physiologic Gastric Juice in Treatment of Tuberculous Diseases. J. D. Nagel, New York.

11. **Acid-Fast Bacteria in Distilled Water.**—Rosenberger is still of the opinion that tubercle bacilli are present in the blood in every case of tuberculosis of the lungs or other viscera. If, he asks, tubercle bacilli are not in the blood, how would they appear in the urine or feces without demonstrable lesions either of the kidney or of the intestine? The demonstration of tubercle bacilli in the blood is not a procedure that can be indulged in by every student, and it is not for the man who "wants to come into the laboratory to do a little work," but for well-trained bacteriologists. Rosenberger repeatedly examined distilled water under many varying conditions for acid-fast bacteria, but failed to find them. He questions the value of the work done by men who have reported adversely on the presence of tubercle bacilli in the blood.

17. **Vaccine Treatment of Acute Rheumatism.**—Persson reports 68 cases of acute rheumatism in which the opsonic treatment has been employed. The bacterial vaccine which was used in all these cases was prepared in the following manner: A desired micro-organism was grown in a media consisting of 80 parts of sea water with a specific gravity of 10.15 which had been sterilized by filtration, and 20 parts of a 5 per cent. solution of neucleanic acid, allowed to develop in the incubator for 48 hours, when proper dilution with the sterilized sea water was made to form a suspension of 20,000,000 germs to the cubic centimeter. It was then exposed to thermal death point for 30 minutes. Each patient received a daily inoculation of 1 c.c. or 20,000,000 germs. The results obtained were as follows: *Streptococcus rheumaticus* infection, 47 patients; cured, 32; improved, 8; and unimproved, 7. *Staphylococcus pyogenes aureus* infection, 14 patients; cured, 3; improved, 7; unimproved, 4. Colon bacillus infection, 7 patients; cured, 3; improved, 1; and unimproved, 3.

Lancet-Clinic, Cincinnati

January 8

20 *Stricture of the Male Urethra. E. O. Smith, Cincinnati.
21 *Acute Dilatation of the Stomach. E. Walker, Evansville, Ind.
22 Life Insurance Examinations with Reference to Urinalysis and Tuberculin Reactions. C. W. Leigh, Chicago.

20. **Stricture of Male Urethra.**—According to Smith, almost every stricture which is secondary to specific urethritis is amenable to gradual intermittent dilation treatment. The first principle to be observed in the introduction of any instrument into the urethra is that no force is to be employed. Internal urethrotomy he regards as unsafe, and says it should never be attempted by the unskilled and inexperienced. External urethrotomy is seldom indicated in other than traumatic strictures.

21. Abstracted in THE JOURNAL Nov. 20, 1909, p. 1770.

Virginia Medical Semi-Monthly, Richmond

December 10

23 What the Practicing Physician Can Do in the Prevention of Typhoid. L. L. Lumsden, Washington, D. C.
24 Tuberculin in Pulmonary Tuberculosis. W. T. Little, Canon City, Colo.
25 Four Hundred Consecutive Abdominal Operations. C. R. Robins, Richmond.

26 Importance of an Early Diagnosis in Genitourinary Tuberculosis. F. R. Hagner and H. G. Fuller, Washington, D. C.
27 Case of Kidney Congenitally Misplaced in the Pelvis. J. W. Henson, Richmond.
28 Case of Hydramnion. J. M. Williams, Disputanta, Va.
29 Causes, Symptoms and Differential Diagnosis of Pyosalpinx. B. M. Anspach, Philadelphia.

Kentucky Medical Journal, Bowling Green

December 15

30 Fracture of the Patella. S. C. McCoy, Louisville.
31 Non-Valvular Diseases of the Heart. J. B. Marvin, Louisville.
32 *Exophthalmic Goiter; Operative Treatment; An Improved Technic. J. R. Wathen, Louisville.
33 Microscopic Examination of Specimens Removed and Conclusions Based on These Examinations and the Recent Work of Others. E. F. Horine, Louisville.

32. **Exophthalmic Goiter.**—The technic employed by Wathen is said to possess the two most important requisites, i. e., rapidity and safety. The patient's head is elevated, and a large sand-pillow is placed under the shoulders and neck. This position throws the chin upward and places the tissues of the neck on the stretch. The skin is grasped in the median line, with two pairs of Jacobs' volsella forceps and traction is made upward. With a large pair of blunt-pointed scissors the skin and platysma muscle are incised; then, with constant upward traction, the incision is continued around the neck as far as is needed, which is usually to the edge of the external jugular vein on either side. This method of elevating the skin by traction with the forceps is much safer, as one is not so liable to cut the veins and arteries lying below; it is very rapid and allows the use of scissors which cause less hemorrhage of the smaller arteries when cut. The two large flaps are now dissected up to above the hyoid bone and down to the sternum. The ribbon muscles are freed in the middle line, and the sternohyoid muscle of each side is double clamped high up and cut, the forceps being left on to act as retractors. Next, the broad and thin sternothyroid muscle is separated from the gland capsule and divided on both sides.

The capsule is then opened and the tumor grasped with large, three-pointed volsella forceps, and traction is made in an upward and opposite direction. With gauze the capsule is wiped off the gland, artery forceps catching the capsule at several points. As the arteries and veins appear they are double clamped and cut high up on the tumor, so as to avoid injury to the recurrent laryngeal nerve, or cut off the arterial branches to the parathyroids. As early as possible the superior thyroid artery should be located and clamped, as this is the major portion of the arterial supply. The constant upward traction on the tumor causes the vessels to stand out between the capsule and the tumor, and also prevents venous hemorrhage.

After the vessels have all been clamped and the tumor freed, except at the isthmus, a very large forcep is placed on this point, and, as near as possible, the tumor is cut V-shaped from the isthmus. Then the clamp is gradually loosened and any bleeding vessels in the pedicle are ligated. Next, the edges of the cut gland are whipped over the catgut and in this way the secretions, as well as the hemorrhage, are stopped. Next, each artery or vein held in the forceps is tied with catgut or celluloid yarn, as the latter is more rapid and less liable to slip than is catgut. A stab-wound is then made in the suprasternal notch, and a small rubber tube, and by its side a small piece of gauze, are introduced. At this stage of the operation, the cavity is repeatedly flushed out with normal saline. The anesthetist then allows the patient to come out somewhat from under the anesthetic, and the straining and nausea test test the ligatures. This is, in Wathen's opinion, one of the most valuable points in his technic, as on more than one occasion he has seen even the celluloid yarn give way and much hemorrhage ensue. The ribbon muscles are then sutured and the skin to which the platysma is attached, is sutured with a subcuticular catgut suture.

Ohio State Medical Journal, Columbus

December

34 Treatment of Syphilis by Deep Injections. A. Ravogli, Cincinnati.
35 Therapeutic Test of Syphilis. J. Metzger, Toledo.
36 Hernia. W. D. Hamilton, Columbus.
37 Question of Operation in Fractures at the Base of the Skull. F. E. Bunts, Cleveland.
38 Cyclic Vomiting. A. Friedlander, Cincinnati.
39 Hygienic Aspect of Ohio River Water Supply Incident to Slack Water Navigation. S. O. Barkhurst, Steubenville.
40 The Delicate Child. E. W. Mitchell, Cincinnati.
41 Case of Hypertrophy of the Palpebral Conjunctiva. F. W. Blake, Columbus.

Pennsylvania Medical Journal, Athens

December

42 Limitations of Mental Therapeutics in the Treatment of Disease. C. W. Burr, Philadelphia.
43 *Sanitary Science and Social Evil—Social Hygiene. F. W. Tomkins, Philadelphia.
44 *Social Hygiene. L. Litchfield, Pittsburg.
45 *Ocular Manifestations with Intracranial Lesions Complicating Aural Disease. S. M. Smith, Philadelphia.
46 *Brief History of the Treatment of Stammering with Suggestions as to Modern Methods. G. Hudson-Makuen, Philadelphia.
47 *Reduction of Temperature in Children without the Use of Drugs. W. C. Hollopeter and H. B. Mills, Philadelphia.
48 *Management of Typhoid, with Special Reference to Diet. W. E. Robertson, Philadelphia.
49 *Importance of Considering the Arterial and Venous Systems in Diseases of Other Organs. H. A. Hare, Philadelphia.
50 *Blood Pressure Past Middle Life in Diagnosis, Prognosis and Treatment. J. H. Barach, Pittsburg.
51 Aortic Stenosis. H. D. Jump, Philadelphia.
52 *Analysis of 63 Cases Exhibiting Xiphisternal Crunching Sound. M. Solis-Cohen, Philadelphia.

43. Abstracted in THE JOURNAL Oct. 9, 1909, p. 1216.

44. Abstracted in THE JOURNAL, Oct. 16, 1909, p. 1324.

45, 46. Abstracted in THE JOURNAL, Nov. 6, 1909, pp. 1588, 1590.

47. **Reduction of Temperature in Children.**—The most satisfactory antipyretic for young children, according to Hollopeter and Mills, is cold. This may be in the form of an ice bag or a sponge bath given cautiously. By means of the ice cap or sponging one is able to calm a nervous irritability, and this is done by literally bleeding the children in their own vessels. The routine method that the authors follow in managing the feverish child, is the manipulation of the ice cap and hot-water bag. The ice bag is placed to the head and th hot-water bag to the feet. Of course this has the effect of equalizing the circulation in the most satisfactory way. This is all preliminary to the sponging.

The authors supplement the ice bag and the hot-water bag, if the child's temperature is not reduced in a few hours, by cold sponging. This is accomplished by removing all the clothing, except the diaper, and placing the child on a blanket and sponging for 10 or 20 minutes. This will allay the nervous tension and reduce the temperature, and is more satisfactory than any other anodyne, especially if done in a gentle manner. In a fretful or nervous child it is well to commence with water at the temperature of from 90 to 95 F. and to sponge the body very carefully, commencing at the face and gradually going down the anatomy until the whole body has been covered, and then allowing a little evaporation or letting the child be exposed, except its extremities. The second step is to take a basin containing water at 80 F. and proceed in the same way as at first, finally using a basin containing water at 70 F. This method of procedure has been less trying to the child and favorable results are reached earlier. If the child is irritable or excitable, the whole body should not be exposed at one time, during the bath, but should be bathed in instalments until the entire body has been covered in full.

Another therapeutic method of great importance in pediatric practice is colonic irrigation. Another valuable adjunct in the management of feverish children, and one now being strongly advocated throughout the medical world, is that of permitting the entrance of plenty of fresh air into the sick-room regardless of the temperature of the patient, the only precaution necessary being the avoidance of draughts, which may readily be accomplished by the intelligent use of screens. Finally, the care of sick children should include treatment in the open air.

48. **Management of Typhoid.**—Concerning the reduction of fever, Robertson says that just as in health one runs a normal daily curve, so in disease, the temperature curve follows a course according to the nature of the infection. If the temperature be 105 F. or over, it is justifiable to give a prolonged sponge or a dose of from 5 to 10 grains of aspirin. It is Robertson's practice not to have his patients disturbed for any purpose from 11 p. m. to 7 a. m. During the day food is

given every four hours. One-half hour after each meal dilute hydrochloric acid is administered in doses of from 20 to 60 minims, gauged by the degree of dryness of the tongue. Patients treated in this way, he asserts, remain well-nourished and do not present the usual hebetude of typhoid. In fevers, hydrochloric acid is diminished or absent; hence the physiologic need is supplied; this, with carbohydrates will prevent tympany. The author's diet list is given. Robertson found that typhoid carriers are rarely met with after the above plan is adopted.

49, 50, 52. Abstracted in THE JOURNAL, Nov. 6, 1909, p. 1507.

Bulletin Johns Hopkins Hospital, Baltimore

December

53 Pleural and Pulmonary Secondary Osteosarcoma. E. R. LeCount, Chicago.
54 Aretaeus the Cappadocian. E. F. Cordell, Baltimore.
55 Results Obtained, and Features of Interest, in 215 Consecutive Cataract Extractions. S. Theobald, Baltimore.

American Journal of Surgery, New York

December

56 Diagnosis and Treatment of Retrodisplacement of the Uterus. E. E. Montgomery, Philadelphia.
57 *Tumors of the Urethra in Women: Especially Malignant Growths. B. C. Hirst, Philadelphia.
58 Surgical Treatment of Hemorrhage Complicating Pregnancy. E. P. Davis, Philadelphia.
59 * Diagnosis and Treatment of Extrauterine Pregnancy. P. B. Bland, Philadelphia.
60 Polypoid Growths and Rectal Polypi: Report of a Recent Case of Fibroma, Undergoing Myxomatous Degeneration. L. H. Adler, Philadelphia.
61 *Relation of Rectal Diseases to the General Nervous System. E. Laplace, Philadelphia.
62 *Roentgen-Ray Treatment of Malignant Disease. C. L. Leonard, Philadelphia.
63 *Conservation of the Middle Turbinate. W. A. Hitschler, Philadelphia.
64 Present Status of the Cataract Operation. W. C. Posey, Philadelphia.
65 Cyclodialysis. W. L. Pyle, Philadelphia.
66 Postoperative Treatment of Urethrotomy—Internal and External. H. M. Christian, Philadelphia.
67 *Cancer of Stomach: A Statistical Study. J. A. McGlinn, Philadelphia.

57. **Tumors of the Urethra.**—Hirst says that the only practical deduction to be drawn from a study of these growths is the necessity of their early and complete removal. If a careful examination after removal shows benignancy, so much the better for the patient as regards recurrence. Benign urethral growths are at least provocative of some symptoms and there is always the possibility of malignant degeneration if they are neglected. If they prove to be malignant, they could not have been removed too early or too completely.

61. **Rectal Diseases.**—Laplace shows the intimate connection of the sigmoid and rectum, with the sympathetic and cerebrospinal nervous sustem; how by various rectal disorders the nervous system becomes thoroughly demoralized, predisposing the patient to many reflex troubles; to demonstrate the great absorbing power of the rectum, for gases and fluids, and thereby to show the toxic influence of constipation on the general system, in weakening the autoprotective powers of the economy, the opsonins and phagocytes.

62. **Roentgen-Ray Treatment of Malignant Disease.** — Leonard is convinced that the Roentgen rays have demonstrated their efficiency as a remedial agent in the treatment of malignant disease, not only in superficial epithelioma, but also in the graver forms of malignancy. Their established potency renders them a valuable supplemental agent to radical operation by destroying the lymphatics and any residual foci of malignancy. Therefore, every patient suffering from malignant disease should submit, as early as possible, to the radical surgical removal of all the visibly diseased tissue that it is possible for the surgeon to remove, and should then be given the benefit of a vigorous course of post-operative Roentgenization. This course of treatment must be vigorous as otherwise it may do more harm than good, and must be guided by the same principle as is a surgical operation, i. e., as severe as the vitality of the patient will permit. The value of this agent as a palliative in hopelessly inoperable cases of malignant disease, has been shown by the complete recovery of patients on whom operation was impossible, and by the relief of pain and the prolongation of life in comfort under normal physical conditions to a degree not attained by any other method of treatment.

63. **Conservation of the Middle Turbinate.**—According to Hitschler, the point to be observed is that a normal middle turbinate cannot be sacrificed without interfering with the functionating power of the nose, and the function of the nose is to cleanse, warm and moisten the air in its passage to the lung. The nasal mucous membrane is not of the same anatomic structure throughout. In passing over a heated surface the air is warmed directly in proportion to the amount of heated surface over which it must pass. Nature has therefore placed in certain portions of the nasal mucous membrane a tissue which can alter the area of its surface to accommodate itself to the varying conditions of the inspired air. The tissue which can thus contract and expand is the cavernous tissue, and this cavernous tissue reaches its highest development in the median surface of the inferior turbinate and in the inferior surface of the middle turbinate—portions of the nasal fossa in the direct line of the current of inspired air. This cavernous tissue also reaches a high grade of development in the inferior portion of the inferior turbinate, and to a less extent on the anterosuperior portion of the septum—the tubercle. It is thus evident that the inferior portion of the middle turbinate is a highly functionating organ and its removal must be accompanied by loss of its function.

67. **Cancer of the Stomach.**—In 2,268 autopsies made at the Philadelphia General Hospital there were 121 cases of primary cancer. The stomach was the site in 37.2 per cent. of the cases (45); and the uterus in 10.7 per cent. (13). Of the cases of cancer of the stomach 32 were in males, and 13 in females. The average age of the patients was 58 years. The youngest was 38, the oldest 76 years. Fifteen, or 35 per cent., occurred between the ages of 45 and 55. Metastases occurred in the following order: Liver, 16 cases; abdominal lymph nodes, 9; pancreas, 8; omentum, 4; mesentery, 4; lungs, 3; kidney, 3; transverse colon, 3; spleen, 3; peritoneum, 3; pleura, 1; both adrenals, 1. The site of the cancer is not reported in all the cases. Of those recorded, the pylorus was the site in 18 cases, the lesser curvature in 4, and the cardiac end in 2. Stenosis was present in 7 cases and atresia in 2.

Chicago Medical Recorder

December

68 Practitioner and Specialist. H. T. Byford, Chicago.
69 *Preservation of Meats by Cold Storage. H. S. Grindley, Champlain, Ill.
70 Value of the Nurse in the Public School. T. A. Woodruff, Chicago.
71 Contract Medical Practice. C. P. Caldwell, Chicago.
72 Cessation of Discharge During Anterior Acute Gonorrhea Due to Hyperemia not the Results of a Gonorrheal Inflammation of Parts in the Immediate Vicinity. W. F. Bernart, Chicago.
73 Marcus Patten Hatfield. G. T. Palmer, Springfield.

69. **Preservation of Meats by Cold Storage.**—The investigations which have been made at the University of Illinois on the effect of cold storage on meats were begun in 1904 with the prime object of determining the character of the chemical changes which meats undergo when kept in cold storage. Both boiling and roasting experiments were made and in this connection the detailed chemical examination of eight samples of cooked meat and eight of broth and drippings resulting from the boiling and the roasting were made. The results of these observations confirm the accurate and exhaustive chemical investigations made in this country by Wiley and Pennington and their associates, and Richardson and Schreubel, which demonstrated without doubt that cold storage meats are as nutritive as fresh meats, considered from the standpoint of their chemical composition, and that meats kept in cold storage under proper conditions undergo at most only very slight chemical changes.

Journal of Ophthalmology and Oto-Laryngology, Chicago

December

74 Ocular Symptoms of Diseases of the Accessory Sinuses. W. C. Posey, Philadelphia.
75 Nodular Opacity of the Cornea Cured by Excision. G. B. Jobson, Franklin, Pa.
76 Painless and Bloodless Tonsillectomy with Descriptive Technic. O. Tydings, Chicago.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

December

77 *Involution of the Puerperal Uterus; Especially Involution of its Circulatory System. J. R. Goodall, Montreal.
78 Teratoma Struumosum Thyroideale Ovarii. C. C. Norris, Philadelphia.

79 *Appendicitis Complicating Pregnancy, Labor and the Puerperium. P. Findley, Omaha.
80 Incarceration of the Pregnant Uterus. R. W. Lobenstine, New York.
81 Sequelæ of Present-Day Labor. J. O. Polak, Brooklyn.
82 *The Chloroform Package for the Obstetric Bag. F. H. McMechan, Cincinnati.
83 Important, but Often Neglected Factors in Infant Feeding. T. S. Southworth, New York City.
84 Treatment of Typhoid in Childhood. LeG. Kerr, Brooklyn.

77. **Involution of the Puerperal Uterus.**—The essential conclusions drawn by Goodall from a study of 80 uteri are as follows: The uterus renews all its arteries after each pregnancy; the renewal always consists in the building of a new vessel within the lumen of the old one. The walls of the old vessels which have become superfluous are completely absorbed. Under the influence of advanced age, or chronic wasting or acute disease the destruction and absorption may be very incomplete. The differences between the parous and nulliparous uterus arise out of the incompleteness of destruction and absorption of waste products. The changes in the walls of the vessels of the uterus are closely allied to those about the atrophic corpus luteum. Disease, either local in the pelvis or general, renders the process of involution much slower, and acute disease may cause a complete block in involution. Alternating periods of exacerbation and improvement may cause conditions in the uterus resembling a series of involutions.

In later years of sexual life and under the influence of disease the more highly specialized tissues have a strong tendency to be replaced by the less specialized, i. e., muscle by elastic tissue. The veins of the uterine body and cervix are everywhere reduced by a growth of hyaline tissue in their walls and not by organization of clot. Under the influence of age and disease this hyaline growth is replaced partly or wholly by elastic tissue. Syncytial cells play no part whatsoever in the production of these venous changes. The large colorless masses found in the mucosa of the uterus of women who have borne children are the remains of atrophic elastic tissue and not the remains of organized blood clot. This unabsorbed dead tissue may remain at least ten months, but probably very much longer, and is the most positive sign of a foregoing pregnancy. When elastic tissue of the parent vessel remains in the uterus unabsorbed, it becomes either atrophic or hypertrophic. The latter, unless disturbed by a subsequent pregnancy, will remain throughout the woman's life and constitute the so-called sclerosis of pregnancy. This unabsorbed hypertrophic elastic tissue may arise from the elastica interna, or from the elastic tissue of the media and adventitia, or from elastic tissue invading the interarterial space, or from all sources combined. The muscular cells of the uterus and cervix undergo fatty degeneration with subsequent slow absorption of the fat. The fibrous tissues undergo hyaline degeneration with slow absorption of this hyaline substance. Many of the muscle fibers of the uterus disappear completely, especially is this true of the media of the large arteries. The uterine arteries and veins probably undergo a slight reduction in their lumen in a manner similar to that of the arteries of the uterine wall.

79. **Appendicitis Complicating Pregnancy.**—Findley reports 7 cases. In all 7 there had been previous attacks of appendicitis. In 5 the attack of appendicitis preceded the uterine contractions, and in each instance the miscarriage or labor was followed by a rapid development of the symptoms referable to the appendix. In 2 there was a gangrenous appendix, with abscess formation which rapidly spread to the general peritoneal cavity and resulted fatally. In 2 the fetus was dead in utero. In one of these cases a blood mole was expelled 3 days after drainage of an abscess. Of the 7 women, 2 died from septic peritonitis and one from bronchopneumonia. One recovered after abscess formation, 2 recovered after sharp attacks with pus confined to the appendix, and one after a recurrent attack of the catarrhal variety. Death occurred in 3 of the 7 cases—a mortality of 43 per cent. In the three cases resulting fatally, one patient was not operated on, making the mortality in the operative cases 33.3 per cent.

Findley concludes that pregnancy does not incite a primary attack of appendicitis, but recurrent attacks may be precipitated by pregnancy, labor and the puerperium. Severe attacks may be confounded with puerperal infection of the uterus and its appendages. Mild attacks of appendicitis do not alter the course of pregnancy. Severe attacks commonly interrupt pregnancy and may lead to death of the fetus either *in utero* or shortly after birth. Death of the fetus is ascribed to nonviability, toxemia, and septicemia. A woman in the childbearing period who has experienced one or more attacks of appendicitis should be operated on because of the liability of a recurrent attack in the event of pregnancy. Mild cases do not demand operative intervention unless oft repeated in the course of pregnancy. Severe cases should be operated on without delay. When occurring near the end of the period of gestation or in labor, the pregnancy should be speedily terminated, immediately after which the appendix should be removed. Where an appendiceal abscess has formed, early drainage is imperative, in the fear that the contracting uterus which forms a part of the abscess wall may liberate the pus into the general peritoneal cavity. When operating in the course of pregnancy, every effort should be put forth to prevent miscarriage. Rest should be enjoined, opiates administered, and during the operation the uterus should be handled and exposed as little as possible.

82. **Chloroform Package for Obstetrical Bag.**—This is an advocacy of the use of the dropper ampoule.

Therapeutic Gazette, Detroit

December

85 Epididymo-Vasostomy for Relief of Sterility. E. Martin.
86 Use of Mercury by the Ophthalmic Surgeon. B. Chance, Philadelphia.
87 Rose Cold and Hay Fever, or Coryza Vasomotoria Periodica: Its Prophylaxis and Treatment. O. L. Latchford, Philadelphia.
88 Vaccine Treatment of Disease with Opsonic Control. E. C. Seufert, Chicago.
89 Changes in the Vascular System and their Bearing on Treatment. H. A. Hare, Philadelphia.

Southern Medical Journal, Nashville

December

90 Mistakes in Medical Practice. S. G. Bonney, Denver.
91 *Surgery of the Gall Bladder. W. D. Haines, Cincinnati.
92 Importance of Recognizing Mild Cases of Pellagra. G. Dock, New Orleans.
93 Cases of Pellagra. A. W. Ryne, Beulah, Miss.
94 *Unique Case of Renal Calculi. P. Bromberg, Nashville.
95 Acute Osteomyelitis. R. Caldwell, Nashville.
96 The Habitus Enteroptieus. F. M. Durham, Columbia, S. C.
97 Treatment of Pelvic Inflammation. E. M. Sanders, Nashville.
98 Late Vomiting of Pregnancy. S. S. Crockett, Nashville.
99 *Hemophilia in One Family. W. M. McCabe, Nashville.

91. Abstracted in THE JOURNAL, Nov. 6, 1909, p. 1591.

94. **Renal Calculi.**—While bathing, the patient was suddenly seized with an intense pain in the back (both sides), the pain radiating downward toward the bladder, accompanied by frequent and urgent desire to urinate, which terminated with the passage of a large number of stones. The peculiarity of the stones is the uniformity in shape, the almost identical size, weighing approximately one-fifth of a grain each, the perfectly smooth surface which seems rather highly polished, and the color when first passed. They were covered with a tough mucus and had the appearance of being enclosed in a sac, but when water was added it was apparent that it was only a mucus covering. The stones themselves, when fresh, were remarkably smooth, highly polished, and of a dark, olive green color. These attacks were frequent during the following 2 years, the patient passing several hundred of the stones.

99. **Hemophilia in One Family.**—The history of this family of hemophiliacs is extremely interesting, because it has been traced back four generations, and shows that the transmission has in every case been through the female.

Alabama Medical Journal, Birmingham

December

100 Case of Ovarian Pregnancy. E. M. Prince, Birmingham.
101 Value of Vaccine Therapy in Surgical Affections. J. P. Long, Birmingham.
102 Importance of Careful History Taking and Case Records. C. Lull, Birmingham.
103 Hepatic Abscess. W. H. Wilder, Birmingham.
104 Delirium Tremens—New Plan of Treatment. G. E. Pettey, Memphis.
105 Prophylaxis against Infectious Disease from the Standpoint of the General Practitioner. D. C. LaVerne, Birmingham.

Journal of the Missouri State Medical Association, St. Louis

December

106 Regurgitant Vomiting Due to Unusual Adhesions Following Gastroenterostomy with Pyloric Exclusion. M. W. Myer, St. Louis.
107 Corneal Ulcers and their Treatment. S. G. Kelly, Sedalia.
108 Relation of the Physician and Surgeon in Appendicitis Cases. A. B. Miller, Macon.
109 Our Overstocked Instrument Case: Plea for Simplicity in Operative Procedure. F. C. Ewing, St. Louis.
110 *Spina Bifida. J. M. Frankenburger, Kansas City.
111 *Amputation at the Shoulder for Sarcoma of the Elbow; Recovery of Patient, with Peculiar Postoperative Sequelæ. B. C. Hyde, Kansas City.
112 Plea for Civil Service in the Charitable Institutions of Missouri. M. A. Bliss, St. Louis.
113 Case of Osteosarcoma. C. W. Watts, Fayette.

110. **Spina Bifida.**—The case reported by Frankenburger is remarkable on account of the immense size of the sac.

111. **Sarcoma of Elbow.**—Hyde reports a case of amputation at the shoulder-joint for sarcoma of elbow, with recovery of the patient, and with peculiar postoperative sequelæ, the appearance of a bleb on the abdomen, synchronous with delirium; the desquamation of the blister, *pari-passu* with the disappearance of delirium, at the same time that there was no wound infection or other apparent condition that would cause an altered mental state; pain and muscular weakness in the left lower extremity.

Detroit Medical Journal

December

114 Operative Interference in Appendicitis. A. M. Campbell, Grand Rapids.
115 Adenoids and their Treatment. C. H. Burton, Hastings, Mich.
116 Plea for the Early, Frequent and Thorough Examination of the Pregnant Woman. H. W. Yates, Detroit.

Journal Cutaneous Diseases, New York

December

117 *Results of the Wassermann Test in Scleroderma. H. H. Whitehouse, New York.
118 The Psychologic Aspect of Dermatitis Factitia. G. Pernet, London, Eng.
119 *Adipositas Cerebralis. G. Pernet, London, Eng.
120 A Comparative Study of Acrodermatitis Chronica Atrophicans and Diffuse Scleroderma, with Associated Morphea Atrophica. J. P. Kanoky, and R. L. Sutton, Kansas City.
121 Tuberculin Injection in the Treatment of Certain Diseases of the Skin. A. S. Clark, New York.

117. **Wassermann Test in Scleroderma.**—Of 5 cases of diffuse scleroderma, 3 gave a strongly positive Wassermann reaction, 1 a faintly positive and 1 a negative reaction. The 2 latter patients, however, had been under antisyphilitic treatment, the first for over a year, and the second for 6 months, a sufficient length of time in each instance to negative the test, had both been cases of undoubted syphilis. Two cases of band-like morphea type appear to stand apart from the others, the reaction being negative in both instances.

These 7 Wassermann tests were made by 3 different investigators, and in each case the original Wassermann test and the Noguchi modification were done, in some instances more than once, and in all with numerous control experiments. Whitehouse deems it not improbable, in view of the histologic similarity of the changes in scleroderma to those in syphilis, that should the Wassermann observations here recorded later be confirmed, syphilis may be found to be an etiologic factor in this disease.

119. **Adipositas Cerebralis.**—The patient, a single woman, aged 29, developed a variety of symptoms, some of which were taken at first for myxedema, for the patient got stout, flabby and apathetic, but thyroid extract did no good. When seen by Sir Victor Horsley the diagnosis of tumor hypophysi was made, owing to the diplopia, lethargy, paresis of the third and seventh nerves on the right side, amenorrhea, and optic neuritis. The patient was treated by Horsley and lived for some years.

At the necropsy an adenoma of the pituitary body was found. It had been noted that the skin was coarse and the lips thickened. The sections showed in addition to the adipositas a hypertrophic condition of the derma itself, the collagen and elastic tissues being very coarse and thick. The connective tissue framework of the fatty layer was also coarse and hypertrophied. The condition was therefore more than an adipositas, one that affects the integument as a whole. Pernet suggests that perhaps the denomination dermoadipositas cerebralis, or hypophysi, would fit the change better than the name given to it by neurologists.

Ophthalmic Record, Chicago

December

122 Poles of the Eye and the Significance of their True Location; and the Binocular Spacial Pole with its Fulness of Meaning. G. C. Savage, Nashville, Tenn.
123 George Cuvier Harlan. C. A. Oliver, Philadelphia.
124 Tendon-Tucking Operation. D. M. Greene, Grand Rapids, Mich.
125 Bony Degeneration of the Choroid Involving the Retina, Ciliary Body, Crystalline Lens and Iris, Right Eye. J. W. May, Kansas City.

American Journal Orthopedic Surgery, Philadelphia

November

126 *Intraperitoneal Neurotomy. J. J. Nutt, New York.
127 Principles of Muscle-Balance as Applied to Orthopedic Practice. W. Truslow, Brooklyn.
128 Symmetry and Asymmetry: Their Effect in Lateral Curvature of the Spine. A. H. Tubby, London, Eng.
129 Treatment of Severe Scoliosis by Plaster Jackets with Windows and by Braces of a Similar Pattern. Z. B. Adams, Boston.
130 *Adolescent Rachitis. Etiology and Pathology. A. E. Horwitz, St. Louis.
131 *Suggestion for the Improvement of Plaster-of-Paris Technic. A. H. Freiberg, Cincinnati.
134 Brace for the Retention of Congenital Luxation of Hip After Reduction. G. G. Davis, Philadelphia.
135 Sling for Head Extension. G. G. Davis, Philadelphia.
136 Single Strap Brace for Talipes Equino Varus. R. T. Taylor, Baltimore.
137 An Appliance for the Correction of Resistant Clubfoot. E. H. Bradford, Boston.
138 *Treatment of Flat-foot. Use and Abuse of Foot-Plates. R. T. Taylor, Baltimore.

126. Abstracted in THE JOURNAL, Aug. 14, 1909, p. 588.

130. **Adolescent Rachitis.**—Horwitz concludes that the disease is a recrudescence of a disturbance which existed in childhood; that this relighting is due to a disturbance in nutrition at the time of great bone activity; that the pathologic histologic changes approach those seen in the infantile type, and that the development of the genitalia is an important factor in the nutritional disturbances at this period.

131. **Improvement of Plaster of Paris Technic.**—To any one accustomed to the frequent use of paster of Paris bandages it must always have been apparent that a waste of labor and material constantly occurs in the loss of much of the plaster of Paris during the manipulation of the bandage prior to its application to the body of the patient. It is of consequence since, depending as we do, on the plaster to furnish the main strength of the dressing, there will be required more bandages to make a dressing of sufficient strength if the plaster lost be considerable than if this is not the case. In order to diminish this factor of waste, Freiberg has been using plaster bandages in such a way as to avoid this waste almost completely. By immersing the plaster of Paris bandages while wrapped in a porous paper it seemed possible to avoid the loss of plaster which ordinarily occurs. After a number of experiments, it was found that the most efficient material was a gray filter paper employed in pharmacy. This has, however, the disadvantage of being rather expensive when used in quantity. An excellent substitute for this is the ordinary white crêpe paper napkin. Freiburg has found it best to use three or four thicknesses of such napkins to envelop each plaster bandage. The paper covering is secured by a slender rubber band.

The bandages, wrapped as above described, are gently immersed in the water and left there without being disturbed in the least until all bubbling has ceased. It is best to use very warm water and to allow considerably more time than usual, say from three to four minutes, for soaking. With the exception of the wrapping, the bandages do not differ from the hand-made ones. When the bubbling has ceased the bandage is carefully lifted so as to avoid breaking the paper. It is now held quietly in the hand for a few seconds until the water is drained from it as much as possible, without the use of pressure. If it be not allowed to drain the water contained within the paper will balloon when pressure is made and the paper will be torn. This is undesirable since it means loss of plaster. This having been avoided by the drainage, the bandage is now slowly but firmly squeezed with both hands so as to express the water contained therein. While it is perhaps not necessary that it be done thus carefully, it is possible in this manner to express the water from the bandage almost clear, and there is no difficulty whatever in applying two plaster jackets from the same vessel of water

without an appreciable loss of plaster equal to a tablespoonful.

138. Abstracted in THE JOURNAL, Aug. 7, 1909, p. 479.

Yale Medical Journal, New Haven, Conn.

December

139 Chylothorax. F. C. Hyde, Greenwich, Conn.
140 Differential Diagnosis of Atypical Appendicitis. J. E. Loveland, Middletown, Conn.
141 Mouth Breathing. H. E. Smyth, Bridgeport, Conn.
142 *Influence of Thoughts and Emotions in the Causation of Disease. S. D. Gilbert, New Haven, Conn.
143 *The Physician as an Educator in Sanitation. F. E. Guild, Windham, Conn.
144 *Appendicitis During Pregnancy. O. G. Ramsay, New Haven, Conn.

142, 143, 144. Abstracted in THE JOURNAL, June 26, 1909, pp. 2124, 2126.

Journal Experimental Medicine, New York

January

145 *Relation of Catalytic Activity of the Blood to the Number of Red Blood Cells in Health, and to the Number of White Blood Cells and the Body Temperature in Peritonitis. M. C. Winternitz and J. P. Pratt, Baltimore.
146 Catalytic Activity of Developing Hen's Eggs. M. C. Winternitz and W. B. Rogers, Baltimore.
147 *Experimental Sarcosporidiosis in the Guinea-Pig and its Relation to a Case of Sarcosporidiosis in Man. S. T. Darling, Ancon, Canal Zone.
148 *Resistance Produced in Mice Against Transplanted Cancer by Autoinoculation of the Spleen. W. W. Woglom, London, Eng.
149 *Respiratory Changes of Pressure at the Various Levels of the Posterior Mediastinum. S. J. Meltzer and J. Auer, New York.
150 *The Excretion of Calcium and Magnesium after Parathyroidectomy. J. V. Cooke, New York.
151 Dextrose Consumption by the Isolated Perfused Human Heart. H. A. Stewart, New York.
152 *An Experimental Study of Opsonic Immunity to *Staphylococcus Aureus*. J. C. Meakins, New York.
153 *Tuberculous Cervical Adenitis: Study of the Tubercle Bacilli Cultivated from Fifteen Consecutive Cases. P. A. Lewis, Boston.
154 *Influence of Adrenalin in Phloridzin Diabetes. A. I. Ringer, New York.

145. **Catalytic Activity of the Blood.**—The catalytic activity of the blood of normal rabbits varies directly with the volume and number of red corpuscles. The catalytic activity of the blood is independent of the temperature of the body and of the leucocytes, because either of these may rise, fall or remain stationary while the catalytic action increases.

147. **Sarcosporidiosis.**—Guinea-pigs were infected by feeding them infected rat muscle. Sarcosporidia appeared identical with those found in the biceps of a negro, both probably representing aberrant forms.

148. **Protective Action of Autoinoculation of Spleen.**—It has been found that the inoculation into mice of different mouse tissues evokes resistance to the growth of transplanted cancer. Woglom shows that autoinoculation of the spleen has the same effect, thus illustrating the extreme delicacy of the reaction.

149. **Respiratory Pressure at Various Levels of Posterior Mediastinum.**—The results of this investigation support the view that the respiratory changes in the apices of the lung are not as good as those in the rest of the lung, and it disproves the claim that any decrease or increase of pressure at any part of the lungs must be equally distributed to all parts of the lungs.

150. **Calcium and Magnesium Excretion After Parathyroidectomy.**—The results suggest a condition of altered salt equilibrium of the nerve cells brought about by the disturbance in the catalytic processes of the body by increasing the acid factors.

152. **Staphylococcus Opsonins.**—The injection of staphylococci killed by heat into rabbits causes a considerable increase in opsonin, and affords protection against living virulent staphylococci in proportion to the amount of opsonin in the blood. There may be great increase of staphylococcus opsonin in human staphylococcus infections and the injection of killed staphylococci may produce a high opsonin content in the blood of human beings.

153. **Type of Tubercle Bacilli in Tuberculous Glands.**—In 15 cases of primary tuberculosis of the lymph nodes of the neck Lewis isolated 9 strains of tubercle bacilli of the bovine type and 6 strains of the human type. The classification was based on adaptability to artificial growth, on character of growth on glycerine broth and of virulence.

154. **Adrenalin in Phloridzin Diabetes.**—The results confirm previous results indicating that adrenalin, by constricting the blood vessels, produces anemia of the tissues and imperfect oxidation, this anemia being followed by glycosuria.

Kansas City Medical Index-Lancet

December

155 Hereditary Spastic Paraplegia: Seven Cases in Two Families. J. Punton, Kansas City.
156 Eugenics. W. I. Thomas.
157 Advantage of Psychometric Methods in Diagnosis, Prognosis and Treatment of Cerebral Disorders. T. A. Williams, Washington, D. C.
158 Great Internal Hemorrhage. H. C. Crowell, Kansas City.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Clinical lectures, single case reports and trials of new drugs and artificial foods are omitted unless of exceptional general interest.

Lancet, London

January 1

1 Problems Relating to the Evolution of the Brain. G. E. Smith.
2 *Points in the Clinical History of Pneumonia. P. Kidd.
3 Mechanism of Infection in Tick Fever and the Hereditary Transmission of *Spirocheta Duttoni* in the Tick. Sir W. B. Leishman.
4 *Treatment of Wounds and Recent Results Obtained at St. George's Hospital, London. Sir W. W. Cheyne.
5 Postural Albuminuria in a Boy the Subject of Chorea. J. S. Bury and J. F. Ward.
6 Diagnosis and Treatment of Duodenal Ulcer. B. G. A. Moynihan.
7 Combined Mercurial and Arylarsonate Treatment of Syphilis. F. J. Lambkin.
8 The Circulatory System. H. Campbell.

2. **Pneumonia.**—Kidd reports 20 cases which point out some of the unusual features occasionally seen in pneumonia. Thus, a young man, aged 27, who gave a clear history of having had four successive rigors, developed signs of pneumonia of the right lower lobe, and the disease terminated by crisis on the second day. Abdominal pain is a well-known mode of invasion in young children, associated sometimes with tenderness and rigidity in the right iliac fossa sufficient to excite a suspicion of appendicitis. Kidd has seen several cases of this kind. Pneumonia may be introduced by symptoms of meningitis ("meningism"), headache, retraction of the head, photophobia and stupor, which may be very misleading. One of the most uncommon initial symptoms is hemoptysis, meaning by this a free hemorrhage, not merely bloodstained expectoration. The most common form of fever is the continuous with slight morning remissions of from 1° to 1.5°. But there may be much greater remissions, and the pyrexia may even be intermittent and very irregular. The course of the disease, as a rule, is a definite one, ending generally, in the absence of complications, by the ninth or tenth day, more often on the seventh day. Abortive attacks in which recovery takes place within two or three days, are not uncommon in children, but may also occur in adults, as shown by the case reported by Kidd. Among the rare complications noted by him were laryngitis; nephritis; anasarca of renal type without albuminuria; severe maniacal delirium; parotitis; acute delirious mania; and death from pulmonary embolism during convalescence. Kidd also saw a case of typhoid beginning with lobar pneumonia; and one of rheumatic fever and pneumonia combined, a simultaneous infection.

4. **Treatment of Wounds.**—Cheyne states that he does not believe that a surgeon will get the best results unless he takes the view that suppuration in clean wounds is avoidable, and that the way to avoid it is to look on the treatment of a wound as a bacteriologic problem, and to act accordingly.

British Medical Journal, London

January 1

9 Ureteral Calculi. S. White.
10 *The Rational Puerperium. J. W. Ballantyne.
11 *Cardiolysis (Precordial Thoracostomy) in Heart Disease. W. Thorburn.
12 The Mechanism of Cardiac Pain. O. May.
13 Infective Endocarditis Treated with Antidiphtherial Serum. W. R. Judd.
14 *Henoch's Purpura or Angioneurotic Edema? H. C. Barlow.
15 Fatal Aplastic Anemia. W. Thomas and H. D. Rolleston.
16 Presence of Bilharzia Hematobia in Egyptian Mummies of the Twentieth Dynasty. M. A. Ruffer.
17 Foreign Body in Tongue. W. Murray.

18 Efflorescence of Urea in Uremia. J. A. W. Pereira.
19 Modification of Whitehead's Operation for Hemorrhoids. W. S. Richardson.
20 Position of Patient after Operations on the Abdomen. S. K. Vines.

10. **The Rational Puerperium.**—In order to obtain for puerperal patients the advantages associated with early rising without the risks which might be expected to belong to the resumption of the erect posture in the first days of the puerperium, Ballantyne recommended to such patients as he considered suitable the performance of systematized movements carried out in the horizontal posture. The movements were quite voluntary. Each patient was covered with a blanket and lay flat in bed with her arms by her sides. The nurse, standing in the center of the ward, directed the exercises. The patients were directed to turn from the back onto the side; three times they rolled on to the one side; three times they drew up the knees; and three times they rolled on to the other side. Next they did exercises with the arms, first stretching them above the head, then flexing them on the chest, then stretching them at right angles to the trunk, and finally placing them by the side; the arm exercises were carried out six times. Next they did breathing exercises six times, filling the chest with air, the arms being stretched by the sides the while. Finally they rolled from side to side three times. In the majority of cases these movements were begun in the first day of the puerperium—that is, in the second twenty-four hours after labor. In no case were they begun later than the fourth day. On the first day they lasted for about ten minutes, on the second day for twenty minutes, and on the third for thirty minutes; they were never carried beyond that time. In most of the cases the tone of the abdominal muscles when the patients left the hospital was above the average, and it was noticed that the result was poorest in phlegmatic women and in those who had shown no enthusiasm for the exercises. It could not be traced that the movements had any marked effect on the action of the bowels. The 69 patients who exercised from the first day onward were mostly normal cases. In 18 cases in which the exercises were begun on the second day there had been some interference or anomaly; case of forceps for persistent left occipito-posterior position; hydramnios with an anencephalic fetus; slight albuminuria; twins; cervical cysts; several breech presentations; prolapsed cord and dead fetus; syphilis with a dead fetus; epilepsy; and postpartum hemorrhage. Among 16 in which the movements were begun only on the third day there had been more serious irregularities, such as craniotomy 2, eclampsia 4, albuminuria 3, postpartum hemorrhage and induction of labor. The four patients who began so late as the fourth day were a case of collapse after delivery of twins, two cases of accidental hemorrhage, and one case of persistently rapid pulse in which thyroid extract had been given during pregnancy for marked obesity. With regard to the date of assumption of the erect posture, each of the cases in which exercises had been performed was judged on its own merits, with the result that 43 patients rose on the seventh day, 38 on the eighth, 19 on the ninth, and 4 on the tenth, and 1 each on the sixth, the eleventh and the twelfth. Toward the beginning of the quarter the eighth day was regarded as the routine time for leaving the horizontal position, but toward the latter part of the term many of the patients got up on the seventh. A very noticable feature in these cases was the absence of the usual phenomena which follow on rest for some days in the horizontal position; the patients, for instance, did not experience the same feeling of weakness in the limbs, dizziness, etc., as usual. It seemed, therefore, as if the seven or eight days' rest in bed with the exercises was followed by a more immediate return to the condition of normal health and strength than after the longer period of rest without the exercises.

11. **Cardiolysis in Heart Disease.**—To 15 cases of cardiolysis recorded in the literature, in which operation on the thorax was undertaken with the object of freeing the heart from adhesion to its bony wall, Thorburn adds one successful case, that of a boy, aged 15, who 9 years after the operation was in much better condition than before.

14. **Henoch's Purpura.**—The most interesting feature common to both the cases reported by Barlow was the occurrence of solid edema which appeared and disappeared very rapidly. This is not a condition generally seen in Henoch's purpura, but angioneurotic edema is characterized by severe gastro-intestinal crises. In neither case was the spleen felt. The temperature in the first case was slightly raised at the onset but in the second it was normal throughout; in both at times the pulse was unduly slow, and for some time in the younger boy (aged 4½ years) it was regularly intermittent. There was no involvement of the joints in the first case, and a very slight and transient swelling of one joint in the second. The changes in the younger boy's general condition were very rapid. One morning he would appear to be *in extremis*, and the next his illness seemed to be slight. Both patients recovered.

Medical Press and Circular, London

December 29

21 Treatment of Congenital Talipes Equinovarus in Infants. W. G. Stevenson.
22 The Digestive Disturbances of Rickets. Prof. A. B. Marfan.
23 Genital Tuberculosis. Prof. Legueu.
24 The Contagion of Leprosy. A. S. Ashmead.
25 The Child Criminal. W. C. Sullivan.
26 Proposed Sterilization of Certain Degenerates. R. R. Rentoul.

Journal Tropical Medicine and Hygiene, London

December 15

27 Filariasis in Fiji. A. D. Brunwin.
28 Bilharziosis of the Anus. F. C. Madden.

British Journal of Children's Diseases, London

December

29 Mirror Writing. G. A. Auden.
30 The Position of the Apex Beat in Children. J. E. H. Sawyer.

Bristol Medico-Chirurgical Journal

December

31 History and Practice of Surgery in Ancient and Medieval Times. J. Swain.
32 *Mercurial Treatment of Tabes Dorsalis. M. Faure.
33 *Vis Medicatrix Naturæ. G. M. Smith.
34 *Cases of Pneumonia. A. Fells.

32. **Mercurial Treatment of Tabes Dorsalis.**—According to Faure, mercurial treatment, better followed longer and more generalized, is one of the causes, and probably the initial cause, of the transformation of the prognosis of tabes. It is generally among patients who have followed, or will follow, a methodical and prolonged mercurial treatment that the evolution of the disease remains benign, provided that they do not ignore other therapeutic rules, and that diagnosis is, and has been, made early, and treatment commenced in good time. It is among patients badly treated, or not cared for at all (who were formerly the rule), that the evolution of the disease remains progressive; but evidently this rule admits of exceptions and corrections in one or the other of both its parts, as dogmatic affirmations in medicine always do. The mercurial treatment to be performed by injections of soluble salts, which permit a stricter surveillance of individual toleration. Calomel and grey oil ought to be reserved for strong and robust patients, and constitute for these cases the best procedure. For other patients, the use of these two substances may be attended with fatigue, and sometimes with an increase of certain tabetic symptoms; hence a difficulty arises in making the medication acceptable, and hence the complaints which are heard against it. Two or three centigrams of mercury benzoate or biniodid daily are sufficient in the majority of cases. The injections should be discontinued in every case in which the patient feels indisposed; but if the salt is soluble, uneasiness will disappear with the elimination of the drug in one or two days. Among invalids whose general state requires exceptional care the hydrargyrum cure may be made with smaller doses and associated with or followed by an arsenical cure.

A series of from 15 to 39 cg. of mercury (metal), renewed about four times yearly, may be given in order to complete an average of 1 gram in the year. Theoretically, 1 cg. of mercury (metal) daily may serve as a standard for the whole of a series, for ordinary patients. The intensity of the treatment does not result either from the quantity of a daily dose, or from the nature of the salt employed, but from the whole dose of the series. Consequently, the series will become shorter as the daily dose becomes bigger.

33. **Vis Medicatrix Naturæ.**—Smith expresses his disbelief in empirical drugging when it has no reason to be trusted from experience, or is not founded on some physiologic principle. Until a thing has been tried on man or animals, one cannot say much. But the whole history of medicine shows how great faith one generation has had in a mode of treatment that the next generation utterly disbelieves in. In studying the various processes that go on for our protection and recovery from disease and accident, there is something which appeals very powerfully to the imagination. To a man who takes a hopeful view of things, the *vis medicatrix naturæ* is a great beneficent force or series of forces. To the pessimist the whole thing merely emphasizes the struggle between the good and evil.

34. **Pneumonia.**—In the first case reported by Fells, the pneumococcus was thus responsible for three distinct and consecutive pneumonic attacks—an empyema, a nephritis and an arthritis. In two other cases, the pneumonia was followed by thrombosis in the veins of the left leg, which appeared with startling suddenness when the patient first stood up after three weeks in bed, and when convalescence from the pneumonia was well established. The swelling was peculiarly hard, and there was no pitting on pressure.

Annals of Tropical Medicine and Parasitology, Liverpool

November

35 Medical and Economic Entomology. R. Newstead.
36 Malaria. W. T. Prout.

Annales de Gynécologie et d'Obstétrique, Paris

December, XXXVI, No. 12, pp. 721-780

37 Menstruation merely a sign of Abortion of an Ovum. (La menstruation dans ses rapports avec l'ovulation, la fécondation, la gestation et l'allaitement.) B. Pinard.
38 Adenomyomas of the Inguinal Portion of the Round Ligament. P. Lecène.
39 *Rapid and Effectual Action of Serotherapy in Acute Gonococcus Infection in the Female. C. le Masson.

39. **Serotherapy of Acute Gonorrhea in the Female.**—Le Masson reports only one case but the apparent complete cure in 17 days, the demonstration of the harmlessness of this method of treatment and the rapidity of its action he thinks justify publication of a report. Five days after the first injection the vaginal secretion had ceased and no gonococci could be discovered; in fourteen days the local symptoms had entirely subsided. Serotherapy is more liable, he asserts, to entail a speedy and complete cure of acute lesions than in the older processes, but it may influence favorably the acute exacerbations of chronic processes. His experience also confirms the analogy in many points between the gonococcus and the meningococcus.

Lyon Médical, Lyons

October 31, XLI, No. 44, pp. 729-768

41 *Localized "Goose Flesh" as Sign of Visceral Disturbance or Neuropathy. (Etude du phénomène localisé de la chair de poule.) Maurice.

November 7, No. 45, pp. 769-812

42 *Symptomatic Value of Hemoptysis in Pulmonary Tuberculosis. M. Piéry.

November 14, No. 46, pp. 813-856

43 *Localizations of Acute Articular Rheumatism in the Subcutaneous Connective Tissue. (Phlegmon séreux rheumatismal.) Gallavardin.

November 21, No. 47, pp. 857-896

44 *Permanent Spasmodic Paralysis in the Course of Slow Chronic Uremia. A. Pic and C. Roubier.

November 28, No. 48, pp. 897-928

45 Prophylaxis of Typhoid. H. Rondet.

December 5, No. 49, pp. 929-996

46 Individual Isolation to Prevent Internal Contagion in Children's Hospitals. P. Chatin.

December 12, No. 50, pp. 997-1064

47 *Present Status of our Knowledge of Cirrhosis of the Liver. M. Piéry.

41. **Localized "Goose Flesh."**—Vergély called attention a few months ago to the fact that a pencil drawn lightly along the skin over the liver region may induce a local patch of "goose-flesh," limited to this locality. He encountered this in 2 patients with inflammatory processes in the biliary passages, and ascribed it to the influence of the local process. Maurice has obtained a positive response in a number of other patients and describes 4 cases in detail. He is more inclined to regard the localized erection of the papillæ of the skin as a sign of a neuropathy with or without a complicating infectious process. The extra-excitability of the sympathetic system in certain neuropathics as shown by this sign suggests the necessity for tranquilizing the sympathetic system and the viscera innervated by it. Otherwise the viscera may be abnormally innervated and forced into abnormal movements. It is possible that when the automatic functioning of the biliary passages is disturbed by an overvigorous nerve wave or too frequently repeated waves, the even flow of the bile is interfered with, germs are aspirated from the intestines and infection results. This visceral overexcitability should be calmed: drugs have only a temporary sedative effect but a change from the home environment may accomplish the purpose.

42. **Symptomatic Importance of Hemoptysis.**—Piéry discusses hemoptysis as it appears in abortive pulmonary tuberculosis, in the fibrous form, in the common fibro-cheesy type and in galloping consumption. With the exception of the hemoptysis of mitral stenosis, it is almost invariably of tuberculous origin or, at least, it is wise to treat the patient for several months on this assumption. In a few rare cases, however, the cause may prove to be cancer, gangrene of the lung, an echinococcus cyst or aneurism of the arch of the aorta. If the blood is red and fresh, there is danger that the hemoptysis will continue, as also when there is fever or when the pulse is 100, 110 or 120, small and depressible.

43. **Localizations of Acute Articular Rheumatism in the Subcutaneous Connective Tissue.**—There are two principal types of subcutaneous lesions developing during the course of acute articular rheumatism, the edematous and the pseudophlegmonous. The latter type may include a serous phlegmon with a clear sterile fluid content. In the two cases reported, the phlegmon was on the leg, developing in young men, rather addicted to alcohol, in the course of a severe and protracted acute articular rheumatism involving the heart and with a tendency to other fleeting pseudophlegmonous localizations in or near the joints.

44. **Paralysis from Uremia.**—The case reported by Pic and Roubier shows that permanent spasmodic paresis may develop from the uremia in the course of chronic interstitial nephritis. The paresis may present the paraplegic form and may vary in intensity. The uremic intoxication probably entails edema in the brain, or the cerebrospinal fluid becomes more toxic. Lumbar puncture may bring some improvement.

47. **Cirrhosis of the Liver.**—Piéry remarks that recent research has demonstrated the unity of the general process in cirrhosis, has defined the initial lesions and has revealed the special points which differentiate cirrhosis from hepatitis. A toxic inflammation of the liver is responsible for many of the tardy chloroform fatalities. He reviews the cirrhosis resulting from tuberculous, syphilitic and other processes, remarking that there is no special pigmentation or cardiac cirrhosis. In the cases suggesting the latter, the trouble, he asserts, is merely cirrhosis of various origins in individuals with heart disease, and the same is true also of cirrhosis with pigmentation. The latter is the result of the setting free of an excessive proportion of hemoglobin. The amount need not be very large to produce this effect when the liver is diseased.

Obstétrique, Paris

November, II, N. S., No. 11, pp. 797-884

48 *Treatment of Puerperal Infection. J. Barsony.
49 Radium Treatment of Gynecologic Disease. H. Chéron.
50 Importance and Advantages of Müller's Method of Delivery with Breech Presentation. (De l'extraction d'après Mueller.) J. Lovrich.

48. **Intravenous Bichlorid Treatment of Puerperal Infection.**—Barsony advocates intravenous injection of bichlorid of mercury which he has been using for this purpose during the last 6 years, after 9 years of tentative administration. In well-established puerperal infection he injects 0.005 gm. of the bichlorid and if the temperature keeps up, he repeats the injection the same day. The injections are suspended at the slightest sign of intoxication and resumed, with a smaller dose, when these symptoms have subsided. The healthy organism cannot tolerate the doses that infected individuals need and tolerate perfectly. In one desperate case he made 28 injec-

tions, representing 0.138 gm. of the bichlorid, in the course of 16 days and the woman recovered. Kenezy made an intravenous injection of 0.02 gm. by mistake in 2 cases but without harm. Barsony discards all local treatment except weak antiseptic vaginal douches, never using the bichlorid for this purpose for fear of cumulative action. The number of red corpuscles increases in normal and febrile pregnant women under the influence of the injections. In one case of puerperal sepsis the reds numbered only 1,200,000, with 20 per cent. hemoglobin; but the woman recovered. A 2 or 5 per 1,000 solution of the mercuric chlorid in physiologic salt solution for intravenous injection and 1 or 0.5 gm. potassium permanganate for the vaginal douches are all that is necessary, with two visits a day and careful supervision of the action of the drug. In a total of 2,736 obstetrical patients in the last few months only 2 women succumbed to puerperal infection and they had pre-existing pyosalpinx or felon. The results in general have been so satisfactory that he has decided in future to make a prophylactic injection of 2 mg. in all parturient patients, and inject 3 mg. as a routine procedure before major gynecologic or obstetric operations.

Presse Médicale, Paris

December 18, XVII, No. 101, pp. 905-920

51 *Acute Articular Rheumatism with Goiter. (Le rhumatisme prolongé des goitreux.) E. Weill and G. Mouriquand.
52 Deep Painful Angioma on Arm or Leg. (Angiomes profonds douloureux des Membres.) H. Benard and L. Lamy.
53 Radium in Cancer. (Quelques réflexions personnelles sur la lutte contre le cancer par le radium.) L. Chevrier.
54 Radioactive Mineral Waters and Serums. (Eaux minérales radioactives et sérums artificiels radioactifs.) C. Fleig.
55 The Esbach-Paquet Quantitative Test for Albumin in the Urine. L. L. Ozoux.

December 22, No. 102, pp. 921-928

56 Chemical Changes in the Fat from the Food in the Intestine. (Chimisme intestinal des graisses alimentaires.) A. Richaud.
57 Symptomatology of Fracture of the Femur. (Similitude des symptomes dans les fractures intra- et extra-capsulaires lorsque le trait de fracture a la même direction.) J. Hennequin and G. Kuss.
58 *Clinical Estimation of Acidity of Urine. A. Martinet.

51. Acute Articular Rheumatism with Goiter.—Weill asserts that acute articular rheumatism in an individual with goiter has a peculiarly protracted course, apparently unmodified by salicylic medication. He believes that thyroid insufficiency reduces the resisting power of the organism in respect to rheumatism. His and others' experience also shows that thyroid treatment seems to reinforce the defensive processes and he advises tentative thyroid treatment in all such cases. He states that he has never witnessed anything that suggests to him that the goiter is able alone to cause the rheumatism syndrome.

58. Estimation of the Acidity of the Urine.—Martinet expatiates on the importance of a rapid, simple and reliable method of estimation of the acidity of the urine as a basis for treatment in various conditions, and describes the technic he prefers for the purpose: To 20 drops of decinormal sodium hydrate solution in a test-tube are added 2 drops of a 1 per cent. alcoholic solution of phenolphthalein and the whole heated to boiling. With the same dropper, urine is then added, drop by drop, the tube being shaken occasionally until the distinct pink color vanishes entirely. The total acidity is expressed in terms of sulphuric acid, SO_4H_2, by dividing 98 by the number of drops of urine required for decoloration. He describes the chemical process involved.

Revue de Médecine, Paris

November, XXIX, No. 11, pp. 753-840

59 *Actinomycosis Simulating Cervical Pott's Disease. (Actinomycome cervico-rachidien.) A. Chauffard and J. Troisier.
60 *Chronic Inflammation in the Aorta. (Le syndrome de Hogdson.) J. Vires and Angladа.
61 Herpes Zoster in Mumps. (Le zona ourlien. Apropos d'un cas de zona au cours d'une méningite ourlienne.) H. Roger and J. Margarot.

59. Actinomycosis Simulating Cervical Pott's Disease.—Actinomycosis may induce a syndrome simulating Pott's disease in the upper part of the spine as in the case reported here. A hack-driver of 31 complained of sudden and painful stiff neck, which persisted unchanged for months, and a tumor developed in the left sternomastoid region, extremely painful, hard as wood and constantly growing larger until the circumference of the neck was nearly 20 inches. After exclusion of woody phlegmon and tuberculosis, the condition was diagnosed as actinomycosis. This assumption was confirmed by the painful trismus, the persisting good general health and the patient's occupation with horses. The blood and spinal fluid were constantly sterile, but the specific agglutination and fixation reaction were pronounced as also the opsonin findings; the serореaction for syphilis was negative. The cerebrospinal fluid was limpid but showed notable lymphocytosis and tendency to cytolysis. Marked improvement was soon evident under 4 gm. of potassium iodid a day and later 6 gm. The patient could move his head and neck without pain by the end of the week and the other symptoms gradually subsided although traces of the tumor were evident even after 3 months, but none by the end of the year.

60. Chronic Aortitis.—Vires states that chronic inflammation of the aorta may induce valvular or vascular insufficiency and the latter is mainly responsible for the syndrome, and reports a case with autopsy findings and discusses the origin and differentiation. The symptoms are those of incompetency of the valve segments with abnormal dilatation of the aorta. Radioscopy, he declares, is valuable for its recognition; the dilatation of the ascending aorta explains the sounds and signs observed.

Semaine Médicale, Paris

December 22, XXIX, No. 51, pp. 601-612

62 *Hemoglobinuria from Hemolysis with Acute Jaundice. (Hémoglobinurie hémolysinique avec ictère polycholique algu.) A. Chauffard and C. Vincent.

62. Hemoglobinuria and Acute Jaundice from Hemolysis.—The patient in the case reported was a man of 47 previously healthy until acute jaundice developed with hemoglobinuria and a hemolysin abounding in the blood. The latter was evidently responsible for the disturbances. This hemolysin anemia did not seem to be a secondary process or process of reaction but was evidently responsible for the hemoglobinuria and vanished as the latter subsided. The jaundice was not due to retention. After about a week of weakness and torpor recovery gradually ensued. The case seems to be the connecting link between the different morbid conditions of acquired hemolytic jaundice on one hand and paroxysmal toxic hemoglobinuria on the other, with some features of each. The attack developed in midsummer, without chilling, which is sometimes responsible for hemoglobinuria.

Archiv für Verdauungs-Krankheiten, Berlin

December, XV, No. 6, pp. 671-808

63 *Dietetic Treatment of Gastric Ulcer. (Diätbehandlung des Ulcus ventriculi.) M. Lüdin.
64 *Spasm of Colon and the Alleged Spastic Form of Constipation. (Weitere Beiträge zur Lehre von der sogenannten spastischen Obstipation.) I. Boas.
65 Pyloric Spasm. S. Schlitz.
66 Method of Catheterizing Duodenum and Pylorus. M. Einhorn.
67 *Etiology of Anacidity. B. Stiller.
68 The Metabolic Findings during Sudden Change from Years of Strict Vegetable Diet to Animal Food. (Ueber die Ausnutzung animalischer Nahrungsmittel von Seiten langjähriger absoluter Vegetarier—japanische Bonzen.) G. Yukawa.

63. Dietetic Treatment of Gastric Ulcer.—Lüdin compares the results of the Leube diet applied in former years with those of the Lenhartz diet which has been followed during the last two years, all at Gerhardt's clinic at Basel. The statistics embrace 55 cases before 1907 and 45 since. The percentage of complete cures and the duration of the course of treatment were much alike in both series, but the different classes of patients showed some difference, suggesting that the Leube method is preferable for the subacute cases, that is, those in which there had been hemorrhage from the stomach before the patients entered the clinic. On the other hand, the Lenhartz diet seems to be preferable for the cases in which the ulcer is still bleeding, although three days of fast must intervene after the hemorrhage before the Lenhartz diet is commenced. In the cases with no history of hemorrhage, the number of complete cures was larger under the Leube treatment, but the duration of the required course was not so long with the Lenhartz diet. The criterion for the cure was when the patients could tolerate the full diet of the regime and be able to spend several hours out of bed without further disturbance from the ulcer.

64. Spasm of the Colon and the Alleged Spastic Obstipation.—Boas discusses the condition which others interpret as "spastic constipation" and asserts that further experience has shown that it is possible to cure the constipation in these cases, and he has done so repeatedly, while the spasmodic contraction of the colon is still unmodified. Why, he asks, does not the spasm cease when the functioning of the intestines is restored to normal without any drugs, merely by dietetic measures, as for ordinary constipation, and the patients feel subjectively entirely well and continue to feel well? This seems to disprove completely any connection between the so-called spastic obstipation and the colon spasm. At the same time, he adds, this spasm of the colon deserves more and careful study on account of its frequency. He encountered 20 such cases in the last year and 2 others with the clinical picture of spastic constipation but no signs of intestinal spasm. The spasm in 10 cases was accompanied by severe constipation; in 5 others there was diarrhea, and in 4 normal bowel functioning. The spasmodic contraction occurred at the sigmoid flexure in 6, in the transverse colon alone in 1, in the ascending colon alone in 2, and in the descending colon alone in 4; while in 7 there was spasmodic contraction at several points in the intestines. In no instance were all the segments of the large intestine contracted simultaneously. In 7 cases the spasm at the sigmoid flexure was accompanied by a movable cecum. He urges further research to determine the actual prevalence of intestinal spasm with clinically normal bowel functioning; whether these spasms are an accompaniment of other organic or functional disturbances elsewhere; what their relations are to neurasthenia; whether they can be induced by reflex action and from what organs; the relations between intestinal spasm and enteroptosis or displacement of the intestines; the nature of the relations between spasm of the colon and chronic enteritis, if such exist; whether or not chemical or physical changes in the feces are liable to induce the spasmodic contraction in the large intestine; whether or not any means can be found to arrest the tendency to spasm, and if such can be found what their action will be on bowel functioning. Boas has discovered this spasm in individuals with normal intestinal functioning but who were nervous and excitable, also in individuals with chronic constipation, chronic diarrhea, rectal carcinoma, chronic catarrh of the large intestine and chronic sigmoiditis. The spasmodically contracted segment of the intestine is not sensitive to pressure and the intensity of the spasm varies as it is examined through weeks and months. When it is multiple, one segment may contract more intensely while another will relax, and *vice versa*; the contraction may even vanish entirely, he states, under soft stroking with the fingers but only to return later in more intense form. He has never witnessed its complete permanent subsidence in any case. When the intestines are inflated the spasm relaxes but it returns again the moment the air escapes. In one case, he sought to cure the tendency by regular distention in this way, systematically repeated, but was unable to induce more than a transient influence on the spasm. The same occurs with injection of fluids. As the contraction is easily relaxed by air and water, it can offer no obstacle to the passage of feces. He was unable to detect any influence on the spasm from the action of belladonna and other drugs.

67. **Etiology of Anacidity.**—Stiller quotes Kelling's recent statement that anacidity is encountered in tuberculosis, in cancer, gout and gall-stone diseases and with tenia, but that the overwhelming majority of such patients are neurasthenics. He then continues with the assertion that all neurasthenics can be separated into two classes and that it is only one of these classes which presents this tendency to anacidity and achylia. These two classes of neurasthenics are each distinguished by certain pronounced anatomic, physiologic and pathologic characteristics. The first class includes the individuals with general asthenia, the movable tenth rib, splashing sound in the stomach, tendency to ptoses of various viscera, defective production of blood and defective nourishment, hypoplasia of the heart and vessels, dyspeptic disturbances and a tendency to nutritional disturbances on slight causes. In short, the neurasthenia is merely one component of the general asthenia which is a constitutional anomaly. The second category of neurasthenics includes all other forms of neurasthenia, the cerebral, spinal, cardiac, sexual and algid. These neurasthenics may present all possible algias, nosophobias, dyspnea, palpitations, arrhythmia or sexual anomalies, but they look sound and healthy all the time, and with all their complaints and suffering and tears never lose their appetite. The contrast between their mental and moral bankruptcy and their well-fed aspect is always striking. He calls this form of neurasthenia the "irritative" to distinguish it from the asthenic in which the nervous disturbances and complaints are of a milder, quieter nature, although of course there are transitional forms. One of the most essential features of the asthenic type is the participation of the abdominal sympathetic system in the constitutional asthenia. This is responsible for the manifold functional aberrations in the digestive sphere, not only in the stomach but in all the digestive secretory glands and assimilating organs, with the specially characteristic undernourished and anemic condition and aspect. This sympathetic or vegetative or dyspeptic neurasthenia explains the nutritional disturbances in these cases and the varying functional disturbances swinging from anacidity to hyperacidity, from extremes of defective to excessive functioning, so that hyperacidity may alternate with or supplant anacidity or the reverse at any moment. The constantly shifting picture is merely the result of the instable, hyperexcitable, asthenic sympathetic nervous system. Gall-stones and tenia by reflex action may induce a similar condition of heterochylia, as he calls it. With an organic affection the secretory disturbance is more constant. The majority of tuberculous individuals are of this asthenic habit, but all asthenic persons do not become tuberculous by any means.

Beiträge zur Geburtshilfe und Gynaekologie, Leipsic

XV, No. 1, pp. 1-165. Last indexed Dec. 11, p. 2042

69 *Defects in Development in the Female. (Entwicklungsstörungen beim weiblichen Geschlecht.) E. Kehrer.
70 The Isthmus of the Uterus and Placenta Prævia. (Der Isthmus uteri; die Placenta isthmica: Fall von Placenta prævia isthmica et cervicalis.) O. Pankow.
71 *Sources of Error in Digital Measurement of Diagonal Conjugate. (Fehlerquellen bei der digitalen Messung der Conjugata diagonalis.) H. Sellheim.
72 Complete Ruptures of Uterus at Munich Woman's Clinic during the last Fifty Years. F. Weber.
73 *Manual Separation of the Placenta. (Ueber manuelle Lösung der reifen Placenta.) A. Leo.
74 Etiology and Prophylaxis of Postoperative Thrombophlebitis. L. Heil.

69. **Defects in Development in the Female.**—Kehrer gives a systematic review of the various defects in physical development encountered in the female, hoping that by studying and classifying them light will be thrown on their causes. A genetic classification is as yet impossible but Campbell has started a foundation for it by his announcement that he was able to induce at will disturbances in the development of the uterus in rats by a one-sided diet, especially exclusive restriction to meat.

71. **Sources of Error in Estimation of Size of Diagonal Conjugate.**—Sellheim discusses the errors due to measuring from the wrong points, changing the position of the finger during the procedure, and inaccurate reading of the measurement taken by the finger in the pelvis.

73. **Manual Separation of the Placenta.**—Leo analyzes the experiences in the Halle clinic with 329 cases of manual separation of the placenta. It is evident from them that far more lives are sacrificed from hemorrhage on account of too tardy intervention than from infection acquired during the procedure. With proper technic the prospects for the puerperium are not much affected. His practice is to draw down or press down the uterus until the external os is outside the vulva, the woman being on her back, under the influence of a general anesthetic, the vulva washed with soap and the vagina briefly rinsed out. The placenta is then separated with the hand protected with a rubber glove while the other hand pushes down the fundus. After removal of the placenta, the hand is rinsed in a disinfectant fluid and introduced again to examine conditions anew. The whole is concluded by rinsing out the uterus and vagina with a weak hot disinfectant solution.

Berliner klinische Wochenschrift

December 20, XLVI, No. 51, pp. 2281-2336

75 *Internal and Operative Treatment of Round Gastric Ulcer and its Sequelæ. (Interne und chirurgische Behandlung des runden Magengeschwürs und seiner Folgezustände.) W. Weintraud.
76 *Experimental and Critical Study of Tuberculin Therapy. J. Citron.
77 Roentgen-Ray Equipment for Field Service. (Heutiger Stand der Verwendung von Röntgenstrahlen im Kriege.) Nlehues.
78 Determination of Trypsin in Serum, etc. (Verwendung der Fuld-Gross'schen Methode zur Antitrypsinbestimmung.) J. Trebing and G. Diesselhorst.
79 Element of Time in Phloridzin Glycosuria Test of Kidney Functioning. (Ueber den zeitlichen Ablauf der Phloridzinglykosurie in der funktionellen Nierendiagnostik.) A. Salomon.
80 Origin of Urobilin. (Zur Frage der Urobilinentstehung.) S. Möller.

75. **Treatment of Gastric Ulcer.**—Weintraud discusses his experiences with 150 cases of gastric ulcer, comparing the Leube and Lenhartz methods and the indications for operative intervention. He has found the most effective measure against internal hemorrhage to be intravenous injection of a 10 per cent. salt solution. The effect, he asserts, is sometimes remarkable; the patient may keep on vomiting but there are no longer fresh clots in the vomitus. As a rule, severe gastric hemorrhage with repeated and frequent vomiting of blood is best combated by complete rest, for which morphin may be necessary, ice, withdrawal of all food until the hemorrhage ceases, and intravenous saline infusion. If the vomiting of blood persists the salt solution may be injected repeatedly in small amounts into the vein and rectum, supplemented by camphor. These measures generally suffice under constant supervision, otherwise a surgeon must be called in. A course of alkaline waters seems to be the best means of healing obstinate gastric ulcers and preventing serious after-effects. Heile reviews his 26 cases of gastric ulcer in which he has operated in the last three years, calling attention to the possible occurrence of a gastric ulcer with gall-stones. In one such case disturbances persisted after removal of the gall-bladder for stones but subsided entirely after a second laparotomy had disclosed a large indurated gastric ulcer.

76. **Tuberculin Treatment.**—Citron writes from Kraus' service in the Berlin Charité to relate what has been learned from years of extensive tuberculin treatment of pulmonary tuberculosis. The main point, he says, is to bear in mind that tuberculin is not a protecting substance in itself but merely serves to stimulate the organism to produce its own protecting substance. Consequently the organism must be given time and be allowed to rest between the doses, as otherwise its power to produce antibodies becomes exhausted. His chief contention is that tuberculin treatment belongs in the hands of the general practitioner who alone, as a rule, is able to persevere with the course to its full conclusion. During the first month, it is better, he says, to have the patient under constant medical supervision but after this, office treatment is sufficient. If a time comes in which no improvement nor arrest of the tuberculosis is evident during the course of a month of treatment and the tuberculous process continues to progress in spite of the tuberculin treatment he advises discontinuing it. Reports of four typical cases illustrate the types most frequently encountered. Benefit is revealed by increase in weight, improvement in the local findings and loss of fever.

Deutsches Archiv für klinische Medizin, Leipsic

XCVIII, Nos. 1-3, pp. 1-298. Last indexed Jan. 1, p. 86

81 Localization of Sensory Paralyses. (Zur Lehre von der Lokalisation sensibler Lähmungen.) D. Gerhardt.
82 *Research on the Functioning of Diseased Kidneys. (Funktion kranker Nieren.) K. Schlayer and R. Kakayasu.
83 Antipneumococcus Immunization of Man, Rabbits and Mice. (Bakteriotropine des Blutserums bei Pneumokokkeninfektionen.) G. Boettcher.
84 Spectroscopic Study of Hemoglobin. (Hämoglobin in normalen und pathologischen Zuständen. Lichtextinktion und Eisengehalt.) E. Masing.
85 Mechanical Theory of Increased Blood Pressure in Nephritis. (Experimentelle Untersuchungen über die Bedeutung der mechanischen Theorie der nephritischen Blutdruckssteigerung.) W. Alwens.
86 Arteriosclerosis and Palpability of Artery Walls. (Arteriosklerose und Fühlbarkeit der Arterienwand.) H. Fischer and K. Schlayer.
87 Pathology of Suprarenals in Man. (Zur Kenntnis der Pathologie der menschlichen Nebenniere.) A. Goldschmidt.
88 *The Atonic-Astatic Type of Infantile Cerebral Paralysis. O. Foerster.
89 Blood Count Technic Simplified. (Eine neue Technik der Leukocytenzählung.) V. Ellermann and A. Erlandsen.
90 Elimination of Bismuth in Urine after "Bismuth Meal" Roentgen-Ray Examination. (Wismutausscheidung im Urin nach Wismutmahlzeit.) G. Dorner and Weingärtner.
91 Fatal Poisoning from Potassium Permanganate. (Vergiftung mit Kaliumpermanganat in Substanz.) J. Rubin and G. Dorner.
92 Differential Diagnosis of Tumor in the Lung and Tuberculosis. H. Grau.
93 Case of Pluriglandular Insufficiency plus Serous Meningitis. K. Goldstein.

82. **Functioning of Diseased Kidneys.**—This is the report in detail of the research described in THE JOURNAL, Dec. 11, 1909, page 2043. It fills 76 pages and is accompanied by 8 colored plates and charts, and the findings are compared with those of other investigators in this line. The work issues from Romberg's clinic at Tübingen.

88. **The Atonic Astatic Type of Infantile Cerebral Paralysis.**—Foerster gives 22 illustrations to show the special features of this form of paralysis as observed in 4 typical cases, comparing them with other types of paralysis in children.

Deutsche medizinische Wochenschrift, Berlin

December 23, XXXV, No. 51, pp. 2249-2304

94 Inflammation in the Ovaries and Fallopian Tubes. (Therapie der entzündlichen Adnexerkrankungen.) H. Hofmeier.
95 The Mechanism of Regulation in Complete Dissociation between Auricle and Ventricle. (Der Regulationsmechanismus bei der völligen Dissoziation zwischen Vorhof und Kammer.) G. F. Nicolai and J. Plesch.
96 Experimental Sleeping Sickness. (Experimentelle Schlafkrankheit.) W. Spielmeyer.
97 Imitation Psychoses. (Zur Frage der Induktionspsychose.) Sleran.
98 Retrospect over 2,000 Appendicitis Operations. J. Schnitzler.
99 *Decapsulation of the Kidneys in Eclampsia. (Nierendekapsulation bei Eklampsie.) Johnsen.
100 Rapid Cultivation of Typhoid Bacilli from Blood Clot after Digestion in Trypsin-Containing Beef Gall. (Die Züchtung von Typhusbazillen aus dem Blutkuchen nach Verdauung desselben in trypsinhaltiger Rindergalle.) F. Kirstein.
101 *Reappearance of Leprosy in Central Europe. (Das Wiederauftreten der Lepra in Mitteleuropa und seine Ursachen.) A. Blaschko.

99. **Decapsulation of the Kidneys in Eclampsia.**—Johnsen reports 3 cases of puerperal eclampsia in which the pulse of 160 or 180 indicated an unfavorable prognosis. One patient recovered after 148 convulsions and the decapsulation did not seem to influence the outcome which was possibly to be ascribed to the copious saline infusion and venesection, the strength being kept up with milk given through the stomach tube. The convulsions did not cease entirely until the twentieth day. In the 2 other cases the decapsulation was followed by rapid recovery from the profound coma, subsidence of the convulsions and of the albuminuria, while the amount of urine immediately increased. One patient succumbed to puerperal sepsis. There are now 42 cases of decapsulation of the kidneys in eclampsia on record, and 24 of the patients were saved; excluding all but the puerperal cases, the proportion of recovery is much larger. General anesthesia was not needed in his case, the simple operation was completed in 20 or 30 minutes.

101. **The Recrudescence of Leprosy in Europe.**—Blaschko believes that most people are immune to leprosy, but still he congratulates Germany on the recent legislation which has placed this disease on the list of those requiring compulsory declaration, urging the necessity for a constant watch that the disease be not allowed to get a foothold in the country.

Medizinische Klinik, Berlin

December 19, V, No. 51, pp. 1917-1958 and Supplement

102 Anatomic Foundation for Disturbances in Hearing. (Anatomischen Grundlagen der Hörstörungen.) V. Hinsberg.
103 *Modern Obstetrics. (Moderne Geburtshilfe.) K. Riedel.
104 Chronic Intoxication from Pilocarpin Systematically Instilled for Glaucoma. A. Elschnig.
105 Test for Detection of Bovine Mastitis by Examination of the Milk. (Neues Verfahren zum Nachweis der Mastitismilch.) J. Bauer and M. Sassenhagen.
106 Blood Findings in Potassium Chlorate Poisoning. (Ueber einige bei einer Kali chloricum-Vergiftung erhobene Blutbefunde.) F. Lange.
107 *Focus Reaction and the Ocular Tuberculin Test in Ophthalmology. (Herdreaktionen und Verwendungsmöglichkeit der Konjunktivalreaktion in der Ophthalmologie.) A. Wolff-Eisner.
108 The Liver in Respect to Absorption of Fat. (Beteiligung der Leber an der Fettresorption.) K. Glaessner and G. Singer.
109 Clinical and Experimental Study of Action of Strophanthin on the Cardiovascular System. (Ueber die Herz- und Gefässwirkung des Strophanthins bei gesunden und kranken Menschen.) O. Vagt. Commenced in No. 50.
110 Treatment of Acute Cardiovascular Weakness. (Bekämpfung der akuten Kreislaufschwäche.) G. Liebermeister.

103. **Modern Obstetrics.**—Riedel reviews mostly the points in which obstetrics at present differ from obstetrics of a few years ago. The necessity for the accoucheur abstaining from septic contamination is one of the most prominent features of modern obstetrics. When a physician has had to incise a felon recently he must refrain from releasing the placenta with his hand in the uterus. In febrile lying-in cases the general care of the body, the mouth and skin, and regulation of sleep and diet are important features. The day of alcohol treatment is past. More and more in Germany abstention from douches, disinfection, etc., is accepted as the rule. He commends the Momburg belt tourniquet as a most effectual and harmless method of controlling post-partum hemorrhage from atony. The Wassermann test has demolished both the Profeta and Colles laws. He rather discredits the scopolamin-morphin "twilight sleep" on account of its drawbacks, but adds that a promising prospect is opened by recent attempts to control the pains of labor by application of cocain to the so-called genital points in the nose, the inferior turbinate and a spot on the septum.

107. **The Conjunctival Tuberculin Reaction in Ophthalmology.**—Wolff-Eisner reiterates that the great advantage of this technic is the absence of the focal reaction which otherwise might lead to the spread of the process, and there is no means to keep a focal reaction under control. Another advantage of this technic is that a positive reaction is obtained only with existing active tuberculosis. This technic is not adapted for ophthalmology as the test is contraindicated by lesions in the eyes. The only way in which it could be used by ophthalmologists would be by repeated instillation of minute amounts of tuberculin to induce a focal reaction in the internal eye. The focal reaction here might prove useful for diagnosis and could be more readily kept under control in the eye.

Monatschrift für Kinderheilkunde, Leipsic

October, VIII, No. 7, pp. 377-448

111 Elimination of Lactase and Sugar in Prematurely Born Infants. (Laktase und Zuckerausscheidung bei frühgeborenen Säuglingen.) H. Nothmann.
112 Experimental Albuminuria Induced by Mechanical, Bloodless Means, and Production of Nephritis in Rabbits. (Ueber mechanische unblutige Hervorrufung von Albuminurie und Erzeugung von Nephritis bei Kaninchen.) R. Fischl.
113 Relations between the Food and the Sebum in Children. (Hauttalg und Ernahrung bei Kindern.) W. Birk.

Münchener medizinische Wochenschrift

December 21, LVI, No. 51, pp. 2617-2672

114 *The Benefits of the Hystereurynter in Placenta Prævia. (Wie sind bei der Placenta praevia die Erfolge für Mutter und Kind am zweckmässigsten zu bessern?) W. Hannes.
115 Operations on and Protheses for Lower Jaw. F. König.
116 Experimental and Morphologic Studies on Vaccine. S. v. Prowazek and J. Yamamoto.
117 The Hemolytic Test in the Insane. (Untersuchungen zur Muchschen Hemmungsreaktion.) E. Stilling.
118 *Formation of Vagina from Loop of Small Intestine. (Scheidenbildung aus einer verlagerten Dünndarmschlinge.) A. Mueller.
119 *Treatment of Severe Unilateral Pulmonary Tuberculosis with Surgical Pneumothorax. (Behandlung schwerer einseitiger Lungentuberkulose mit künstlichem Pneumothorax.) L. v. Muralt. Commenced in No. 50.

114. **Treatment of Placenta Prævia.**—Hannes remarks that tamponing the vagina is of not the least use in arresting hemorrhage from a placenta prævia. Compression to be effectual must be applied directly on the placenta, pushing it back into its place, and this is accomplished in an ideal manner by the inflatable bag introduced into the membranes. It acts as a tampon, as a labor contraction-promoting element, and also as a gentle dilating force. The bag is boiled and kept in sterile glycerin. It was thus applied in 246 cases of placenta prævia at the Breslau maternity between 1894 and 1908. Fully 70 per cent. of the children were born alive, surviving the first few days, and 83 per cent. in the cases in which only the inflatable bag had been used. He compares these figures with the statistics of other methods elsewhere, all showing a mortality for the children ranging between 60 and 80 per cent. The results were equally favorable in respect to the mothers; only 8 of the 143 treated with the inflatable bag alone succumbed, that is, 5.5 per cent., and these deaths might have been prevented by earlier application of the bag; 1 died of eclampsia, 1 from air embolism after version, 1 from a cardiac defect, and 4 from sepsis already developed when brought to the clinic. The mortality from infection was thus 1.8 per cent., or, excluding the cases of preceding infection, only 0.9 per cent. The bag imitates physiologic conditions, but it requires the constant presence of the physician. Hannes is convinced that the more prevalent the use of a hystereurynter with placenta prævia and the earlier it is applied in the individual case, the more children will be born alive and the more mothers will survive.

118. **Formation of Vagina out of Loop of Small Intestine.**—Mueller describes a case in which Mori's technic was applied with complete success. The patient was a healthy young woman with no trace of a vagina or menstruation but soon to be married. A loop of the small intestine that could be brought down to the vulva was resected for about 14 cm. and the piece cut out was wrapped in gauze while the stumps were united with an end-to-end suture. The resected piece with its attached mesentery was then brought down through the peritoneum between the rectum and bladder, the lower end of the strip still covered with gauze, the upper end closed with a three tier suture. Five catgut sutures fastened the lower end of the intestine to the lips of the wound in the vulva. The operation required two and one-third hours and was done under scopolamin-morphin, chloroform and ether, followed by saline infusion. Convalescence was rapid without any drawbacks, as also in Mori's case; the new method therefore, he thinks, deserves to rank as a typical vaginoplastic operation. He suggests that this same technic may prove useful for bladder and other defects. The surgeon was Prince Ludwig Ferdinand of Bavaria, M.D.

119. **Treatment of Pulmonary Tuberculosis with Surgical Pneumothorax.**—Muralt reports 10 cases remarking that 7 were regarded as hopeless until the therapeutic pneumothorax was induced as the last resort. One patient is now completely cured, with others on the road to recovery. The method is applicable only for severe unilateral pulmonary tuberculosis and it is accompanied by certain dangers and liability to complications. The physician has to debate whether to offer the patient this chance or let the disease proceed unchecked, the same as in case of a malignant tumor. Increasing experiences will define the indications still better but even at present he regards the method as having won a permanent place for treatment in certain cases of pulmonary tuberculosis.

Therapeutische Monatshefte, Berlin

December, XXIII, No. 12, pp. 623-691

120 *Shoulder Arthritis responsible for Neuralgiform Pain in Arm. (Omarthritis mit Brachialgie und ihre Behandlung.) A. Goldscheider.
121 Importance of Albumin in Infant Feeding. (Bedeutung des Eiweisses der Nahrung in der Diätetik des gesunden und kranken Säuglings.) L. Langstein.
122 Treatment of Acute and Chronic Endometritis. R. Birnbaum.
123 What Ehrlich has Accomplished in Treatment of Trypanosome Infection. (Die Ehrlichsche Chemotherapie der Protozoenkrankheiten.) C. Schilling.
124 *Influence of Purgatives on Peristalsis. (Einfluss der Abführmittel auf die Verdauungsbewegungen.) R. Magnus.
125 Mode of Action of Hypnotics. (Zur Theorie der Wirkung von Schlafmitteln.) C. Mannich and K. W. Rosemund.
126 Ergot. (Ueber Mutterkorn.) W. Heubner.

120. **Inflammation of the Shoulder Joint.**—Goldscheider calls attention to a type of inflammation in the shoulder joint which causes little local disturbance but induces severe pain in the arm down to the hand. The disturbances in the arm and hand entirely overshadow the mild causal affection in the shoulder. The connection, however, is soon rendered evident by the subsidence of all trouble as the omarthritis is cured. Closer analysis shows moreover that the pains in the hand and forearm occur with movements in which the shoulder has to participate. Without treatment of the shoulder trouble all measures against the brachialgia are ineffectual, but, on the other hand, the nervous symptoms in the arm require treatment with the arthritis. A general course of tonics and sweating procedures for several days may be required, with heat applied to the shoulder, and use of a sling for several days. An electric-light cap, fitting over the shoulder, has proved useful in his experience. These measures should be supplemented by the salicylates, and this treatment should be kept up for several weeks. A little passive and active movement of the shoulder joint should be commenced after the second week, brief but frequently repeated, and always very gentle. He warns that unless the scapula is held by another person while the shoulder

is being exercised, the desired and supposed mobilization is not realized. The pains in the arm generally persist until the joint can be exercised, and then they subside spontaneously. The pain in the shoulder and the radiating brachialgia both vanish when the shoulder can be moved freely enough for the ordinary demands on it.

124. **Influence of Purgatives on the Gastrointestinal Movements.**—Magnus has been studying with the Roentgen rays the influence on the digestive tract of several of the most common purgatives. Each seems to have its own mode of action. He states that senna acts on the large intestine alone, castor-oil influences the small intestine, stimulating it to active movements, while magnesium sulphate prevents the absorption of water in the intestinal canal but displays no power to stimulate the movements of the intestine.

Therapie der Gegenwart, Berlin

December, L, No. 12, pp. 553-600

127 *Chronic Fibrous Meningitis. (Schwartenbildung am Rückenmark.) F. Krause.
128 *Differential Diagnosis and Prognosis of Tuberculous Pseudolobar Pneumonia. D. Gerhardt.
129 *Etiology and Treatment of True Angina Pectoris. M. Michaelis.
130 *Acetone-Alcohol Disinfection. O. v. Herff.
131 *Iodin Sterilization. (Zur Hautdesinfektion bei Internistischen Eingriffen.) Umber.
132 *Prevention of Thrombosis in Typhoid. (Zur Verhütung von Venenthrombosen beim Typhus.) G. Klemperer.

127. **Chronic Fibrous Meningitis.**—Krause gives an illustrated description of three cases of what was supposed to be an intradural tumor compressing the spinal cord in the neck, but which proved to be a localized induration, the tough fibrous mass involving or clinging to the spinal cord and being detachable only with the knife. The cases show that a longitudinal incision can be made in the spinal cord without severe injury resulting. This suggests that tumors in the spinal cord need no longer be regarded as necessarily contraindicating surgical interference. Improvement followed the removal of the fibrous patch in each case, but a complete cure is scarcely probable on account of the nature of the process. The prognosis with this fibrous meningitis is therefore less promising than for actual intradural tumors which are generally circumscribed and do not involve the spinal cord except by their mechanical pressure. He has opened up the spinal cord in 36 cases of such tumors and has lost only 9 of the patients while a number were completely cured, even the severest paralysis retrogressing after the operation. In his last series of 10 intradural tumors all but one of the patients were cured, this patient succumbing to pyelonephritis and exhaustion.

128. **Tuberculous Pneumonia.**—Gerhardt discusses the differentiation of the acute pseudolobar form of tuberculous pneumonia which simulates ordinary croupous pneumonia at first and only gradually discloses its malignant nature. The lack of a crisis, of dyspnea and cyanosis, occurrence of the diazo reaction, and the green sputum without tendency to jaundice, may suggest the tuberculous origin. Among 99 pneumonia and 237 tuberculous cadavers examined during the last two years at Basel the two diseases were found combined in only 10; in 4 of these the tuberculosis was evidently an old and encapsulated process. The leucocyte count has considerable differential importance, Gerhardt says, as it is generally high in pneumonia in the young while in acute tuberculous processes it is as a rule close to or below normal. In the 6 cases of tuberculous pneumonia examined during the last year the leucocytes ranged between 4,500 and 8,000, but in another case reported in detail the leucocytes numbered 14,000. This case shows further, he asserts, that acute hemorrhagic nephritis may accompany tuberculous pneumonia. The finding of bronchial conglomerates in the sputum usually speaks for fibrinous pneumonia, but in one case in his experience bronchial clots were coughed up five or eight times a day, sometimes fully 4 or 5 cm. long and ramified, but autopsy revealed merely an ordinary tuberculous pneumonia with cheesy degeneration. In another case described, the typical pulmonary tuberculosis ran the usual course at first but then gradually restrogressed to complete recovery, the patient, a man of 47, regaining his former health and weight. He had been under treatment six years before for cough and night sweats which had subsided during a stay in a sanatorium.

129. **Treatment of Angina Pectoris.**—Michaelis describes the treatment of the paroxysm and, in the intervals, removal of the cause and measures to increase the resisting powers. He has never witnessed any fatality from morphin but has always found it efficient in relieving the pain besides combating the spasm. Nitrite of amyl, he says, not only relieves but keeps the patient tranquil when he knows that he has it always with him. Local heat is also useful during an attack, and application of dry cups in the axilla or on the back. When there is much dyspnea inhalation of oxygen is extremely beneficial. If the patient shrinks from the use of a mask, a funnel can be fitted on the tube. The mechanical support of the heart region by a pad, exerting slight pressure, relieves some patients and helps to ward off attacks. Sleep is indispensable and hydrotherapy is very useful. In prophylaxis, potassium iodid should be given in not too small doses and should be kept up for a long time. Michaelis does not ascribe much importance to heredity. His experimental research has shown the possibility of development of a collateral circulation. The tendency to arteriosclerosis should be combated by the usual measures.

130. **Acetone-Alcohol Disinfection.**—Further experience has confirmed von Herff in his favorable verdict on this method of disinfection, which was described in THE JOURNAL, Feb. 27, 1909, page 744. He has modified the method a little, especially for hair-covered surfaces, by using a varnish for the field of operation, in addition. His formula for this is 10 parts each of benzoin and dammar resin in 100 parts ether, stained with 20 per cent. of an alcohol iodo-iodid solution (7 parts iodin, 5 parts potassium iodid and 100 parts alcohol). Two years' experience with this technic has demonstrated to his satisfaction the superiority of this simple and convenient method above all other technics in which soap and water are permitted. He rubs the field of operation for 5 minutes with the 10 per cent. alcoholic acetone solution and then applies the varnish. As the best criterion of the method he presents his experience with 280 suprasymphyseal transverse incisions without a single primary operative peritonitis.

131. **Iodin Sterilization.**—Umber lauds the superiority of the method of disinfecting the field of operation, dry, by merely swabbing with tincture of iodin. He has used it exclusively during the last year and commends it to internists and general practitioners as the simplest and most effectual of all measures yet introduced.

132. **Prevention of Venous Thrombosis in Typhoid.**—Klemperer has had no complications of this kind in his practice since he has introduced as a routine measure the passive exercising of the legs at the hip and knee. The nurse is trained to extend and flex the leg and thigh from 12 to 15 times at 2 or 3 hour intervals. This exercise is not exhausting while it prevents stagnation in the circulation and it has the further advantage that the nurse is busied with the patient more continously. Before this measure was introduced he used to have venous thrombosis in about 10 per cent. of his typhoid cases but there has been nothing of the kind since.

Virchows Archiv, Berlin

December, CXCVIII, No. 3, pp. 385-572

133 Traumatic Necrosis and Regeneration of Striated Human Muscle. F. Pielsticker. Commenced in No. 2.
134 Histology of So-Called Accessory Pancreas. H. v. Heinrich.
135 Local Changes in Tissues Induced by Lead Salts. (Oertliche durch Bleisalze im Gewebe hervorgerufenen Veränderungen.) Kumita.
136 Primary Syncytium-Endothelioma of Lymph Gland in Carotid Region. C. Ciaccio.
137 Influence on Endocardium of Injection of Cancer Extract. (Beeinflussung des Endokards durch krebsiges Material.) L. Panichi and C. Guelfi.
138 Elastic Tissue of Nipple. (Elastisches Gewebe der Mamilla im normalen und pathologischen Zustände.) E. Savini and T. Savini-Castano.
139 Partial Aplasia and Giant Growth in the Mammalian Ovary. H. Rehberg.
140 Pathology of Ovary in the Hen. (Hydrops follicularis, konglomerierte Fibrome und Adenom des Ovariums von Gallina domestica.) J. Buchholz.
141 Formations Resembling Infarcts in the Spleen of Tuberculous Guinea-Pigs. (Infarktartigen Gebilde in der Milz des tuberkulösen Meerschweinchens.) R. Kawamura.
142 *Sarcoma of the Esophagus. (Ausgedehntes Medullarsarkom des Oesophagus.) Rieke.
143 Abscess of the Spinal Cord. (Zur Kenntnis des Rückenmarksabszesses.) A. Wolff.
144 Arteriosclerosis and Resulting Changes in the Vessel Nerves. (Zur Frage der Arteriosklerose und der Gefässnerven-Veränderung bei derselben.) Y. Oguro.

145 Tubercle Bacilli in the Intermuscular Lymph Glands in General Tuberculosis in Cattle. (Untersuchungen zur Frage des Vorkommens latenter Tuberkelbazillen in den intermuskulären Lymphdrüsen generalisiert tuberkulöser Rinder.) W. Jonske.

142. Sarcoma of the Esophagus.—Rieke reports a case of extensive sarcoma of the esophagus causing no symptoms except the inexplicable slow decline, the patient dying of intercurrent pneumonia. He also tabulates the details of 29 other cases of sarcoma of the esophagus in the accessible literature. In all the other cases there was more or less pain, with signs of stenosis, but in the case reported the large tumor was unusually soft and there was no breaking down of tissue; the surface was thus left smooth and yielding and there was no interference with the passage of food although two-thirds of the esophagus were occupied by the knobby tumor, entirely encircling it but with no involvement of the environment.

Wiener klinische Wochenschrift, Vienna

December 23, XXII, No. 51, pp. 1777-1812

146 Theory of Respiration of the Tissues: the Intermediary Bodies. (Gewebeatmung durch Intermediärkörper.) S. Fränkel and L. Dimitz.
147 *Mode of Action of Adrenalin Administered by Various Routes. (Wirkungsweise des Adrenalins bei verschiedener Applikation und Dias Auftreten desselben im Harn.) W. Falta and L. Ivcovic.
148 Destructive Action of Ovarian Substance on Tubercle Bacilli. (Einwirkung von Ovarialsubstanz auf Tuberkelbazillen.) H. Wittgenstein.
149 Non-Parasitic Cysts in the Liver. (Zur Frage der nichtparasitären Leberzysten.) H. v. Haberer.
150 The Absolutely Irregular Pulse. (Pulsus irregularis perpetuus.) C. J. Rothberger and H. Winterberg.
151 *Experimental Study of Phenomena after Removal of Both Suprarenals. (Einige Ausfallserscheinungen nach Exstirpation beider Nebennieren.) O. Schwarz.

147. Action of Adrenalin Administered by Various Routes.—Falta reports from v. Noorden's clinic at Vienna that adrenalin injected subcutaneously or into the peritoneum in laboratory animals has a marked toxic action and no adrenalin appears in the urine. On the other hand, 20 times this dosage and more, given by the mouth, causes no signs of toxic action, while considerable amounts of adrenalin are eliminated in the urine. He thinks that under the influence of the digestive juice and of the mucosa the adrenalin becomes bound in some way which deprives it of its physiologic and toxic properties. Further research seems to demonstrate that the deintoxication of adrenalin occurs, not in the liver, but in the gastrointestinal canal.

151. Phenomena After Removal of Both Suprarenals.—Schwarz announces that mature male white rats possess an accessory suprarenal at the head of the epididymis. This accessory suprarenal contains no medulla, consequently after removal of the other suprarenals the animal still has enough suprarenal tissue left for the vital processes while yet there is no possible production of adrenalin. The animals can thus be regarded as entirely free from adrenalin and yet they do not seem to suffer in the least from the loss of their suprarenals. They are thus peculiarly adapted for research on the properties of adrenalin. One of the most interesting facts learned is that phloridzin is intensely toxic for these animals, while injection of adrenalin seems to annul the toxic properties of the phloridzin. Other facts observed are the disappearance of the glycogen in the liver, increased elimination of nitrogen and general increase in weight.

Zeitschrift für klinische Medizin, Berlin

LXIX, Nos. 1-2, pp. 1-204. Last indexed Oct. 16, p. 1344

152 Infection of Man with *Distomum felineum*. W. Rindfleisch.
153 Topography of the Mediastinum with Heart of Normal and Pathologic Outline. (Zur Topographie des Mediastinum bei normaler und bei pathologischer Herzform.) O. Stoerk.
154 Transient Disturbances in Conduction of Heart Impulse. (Zur Kenntnis der vorübergehenden Ueberleitungsstörungen des Herzens.) E. Magnus-Alsleben.
155 Oral Pulsatory Expiration. E. Freund.
156 Kidney and Ureter Functioning in a Case of Exstrophy of the Bladder. (Nieren- und Ureterenfunktion bei einem Fall von Ectopia vesicae urinariae.) J. Jankowski.
157 Experimental Transmission of Fowl Leucemia. (Uebertragungsversuche mit Hühnerleukämie.) H. Hirschfeld and M. Jacoby.
158 Aortic Aneurism in Youth and After Acute Articular Rheumatism. (Vorkommen von Aortenaneurysmen im jugendlichen Alter und nach akutem Gelenkrheumatismus.) R. Bernert.
159 Diagnosis of Abdominal Cancers and Tumors with Special Regard to the Antitrypsin Test and Casein Reaction. (Beiträge zur Diagnostik der Abdominalkarzinome und Tumoren unter besonderer Berücksichtigung der Briegerschen und der Kaseinreaktion.) R. Schorlemmer and H. Selter.

Zentralblatt für Chirurgie, Leipsic

December 25, XXXVI, No. 52, pp. 1777-1808

160 Acetone-Alcohol Disinfection. (Der Azetonalkohol in der Desinfektion des Operationsfeldes.) O. v. Herff. See abstract 130 above.
161 *Means of Reducing Operative Loss of Blood. (Ueber Versuche, die operative Blutung zu vermindern.) W. Anschütz.
162 *Differential Pressure Procedure for Inducing Local Anemia in Cranial Surgery. F. Sauerbruch. First part in No. 47.

161, 162. **To Reduce Operative Loss of Blood.**—Anschütz states that for a year or so he has been attempting to reduce the amount of blood lost during operations by confining the blood in the arms and legs, thus shutting off this much from the general circulation. He applies a constricting band as for Bier's constriction hyperemia, and has used this technic in 100 cases with satisfactory results. The idea, he says, was suggested by Dawbarn's sequestration anemia in skull and brain surgery, but he applies his technic also for operations on the neck, chest and back, and does not use the boiling water as Dawbarn recommends. The constricting band is applied an hour before the operation, with the trunk slightly raised. The arterial pulse must be kept palpable. He has found it best to give scopolamin-morphin as a preliminary. The cutaneous incision bleeds as usual but in the deeper layers the venous and capillary bleeding is materially reduced. After ligating the bleeding vessels the wound is sutured and then the bands are removed, first from the arms and in 20 or 30 minutes from the legs too. The influence on the anesthesia and the value of having this large supply of blood free from the toxic drug, which can be returned again into the circulation merely by raising the limbs, are advantages of great moment. When the constricting bands are removed there is no after-bleeding. The Sauerbruch method of accomplishing the same purpose by the differential pressure procedures (mentioned in these columns Jan. 1, 1910, page 90) is much more effectual, Anschütz remarks, but the simplicity and ready application of the constricting band technic adapt it for many uses.

Zentralblatt für Gynäkologie, Leipsic

December 25, XXXIII, No. 52, pp. 1753-1776

163 *Treatment of Pelvic Cellulitis with Saline Injections. (Behandlung parametritischer Exsudate mit Injektion physiologischer Kochsalzlösung.) F. Kirstein.

163. Saline Solution in Treatment of Exudates from Pelvic Cellulitis.—Kirstein has obtained such uniformly good results with this technic that he wishes to acquaint others with it in order that it may be tested on a larger scale than is possible in his service at Göttingen. He relates his experience with it in four severe cases of parametritic exudates causing chronic weakness and comparative disability. In the first case the uterus seemed to be embedded in hard, immovable, only slightly sensitive masses. No limits to the hard masses could be palpated above, and they spread around the rectum, constricting it at one point. The patient was kept in bed, given a tepid full bath every two or three days, with iron tonics, and every day the vagina was swabbed out with 1 per cent. phenol solution through a speculum, and then from three to five syringefuls of physiologic salt solution were injected through the vagina into the region back of the cervix, the cannula being pushed in until it encountered a hard obstacle. Fourteen of these injections were made in all, the capacity of the syringe being 2.5 c.c. The tip of the cannula was pushed into the hard mass each time, and the latter seemed to soften almost at once. When the patient was discharged on the twenty-second day all subjective disturbances had ceased, the hard masses had materially softened and subsided, with no further pressure on the rectum; the uterus was movable, and the woman was able to return to hard work in field and garden without any pain although in sitting she still felt occasionally a little pain. She refused further injections as she felt perfectly well. He has made 60 of these injections to date, and the patients were discharged from the hospital in from 15 to 29 days. The difference in the conditions of osmosis may possibly have something to do with the prompt softening of the exudates, or the fluid injected may induce congestion in the parts, thus realizing therapeutic hyperemia.

Gazzetta degli Ospedali e delle Cliniche, Milan

December 19, XXX, No. 151, pp. 1593-1608

164 Precipitating Power of the Blood in Respect to Colloidal Silver. (Potere precipitante del sangue sull'argento colloidale.) G. Breccia.

December 21, No. 152, pp. 1609-1616

165 The Milk Seroreaction in Malta Fever in Goats in Sicily. (L'infezione maltese nelle capre di Catania.) F. Valenti and V. Panto.

Policlinico, Rome

December 19, XVI, No. 51, pp. 1605-1636

166 *Intravenous Chloroform Anesthesia. (Sulla cloroflebonarcosi.) R. Giani.

167 Pathology of Syphilides of Nervous System. P. Alessandrini.

166. **Intravenous Chloroform General Anesthesia.**—Giani here reports from Durante's clinic at Rome two cases in which a large angiosarcoma of the lip or a benign tumor in the hypophysis was removed under chloroform administered in salt solution saturated with the anesthetic. The injection was made into the saphenous vein about 4.5 cm. from its junction with the femoral. About 55 cm. were allowed to flow into the vein the first minute; 1,100 c.c. of fluid were used in all in the first case, representing 6.6 gm. The anesthesia lasted for forty minutes; seven minutes after cessation of the infusion the patient roused. Traces of albumin were found in the urine during the day but it was normal again by the following morning. There was no tendency to vomiting during the operation or afterward in either case. The relaxation of the muscles was complete by the fifth minute and by the fourth in the second case. In the latter, 1,500 c.c. fluid was infused, with 9 gm. of chloroform, during the 75 minutes required for the operation and the patient roused in five minutes. When the anesthesia was complete the infusion was suspended until the corneal reflex warned that more of the chloroform was required. He does not regard the method as responsible for the slight transient changes observed in the urine, the previous condition of the patients being sufficient to explain it. Nothing of the kind was observed in animals during his experimental research. He was favorably impressed with the advantages and harmlessness of this technic for operations on the head and throat.

Norsk Magazin for Lægevidenskaben, Christiania

December, LXX, No. 12, pp. 1129-1224

168 Urobilinuria. O. Hanssen.

169 *Benzidin and Guaiac Tests for Occult Blood in Feces. (Benzidinproven og guajakproven til paavisning af okkult blod i faeces.) O. Holmboe.

170 Cardiospasm. (Diffus dilatation af Oesophagus uden anatomisk stenose cardiospasmus.) H. Haerem.

169. **The Benzidin Test for Occult Blood.**—Holmboe applied both the guaiac and the benzidin test in 75 cases and the results showed a constant parallel between them, except that in a few instances the guaiac test gave negative findings until after chloroform extraction. The superior simplicity, inexpensiveness and other advantages of the benzidin test commend it, he declares, as superior to the guaiac technic.

Ugeskrift for Læger, Copenhagen

December 9, LXXI, No. 49, pp. 1347-1372

171 Seroreaction in Leprosy. (Wassermann-Reaktion ved Spedalskhed.) Ehlers and Bourret.

December 16, No. 50, pp. 1373-1400

172 *Cure of Chronic Diphtheria Bacillus Carriers. (Uskadeliggørelse af Infektionsbærere ved Difteri.) A. Schiøtz.

172. **Method of Banishing the Bacilli in Chronic Bacillus Carriers.**—Schiøtz was impressed with the fact that an individual with staphylococcus sore throat, installed in the diphtheria ward under a mistaken diagnosis, did not acquire diphtheria. Also that after recovery from diphtheria in several other cases the positive bacteriologic findings in the throat became negative during an intercurrent ordinary sore throat. These experiences suggested that inoculation of the throat with staphylococci might drive out the diphtheria bacilli still lingering there months after convalescence. He has acted on this presumption in six cases inoculating the patients with staphylococci from a pure culture of staphylococci isolated from the throat of a patient in the surgical ward, apparently healthy except for the condition requiring operation. He thus inoculated a young man who had been detained in the hospital for three months as after recovery from moderate diphtheria bacilli were found constantly in his throat. After inoculation with the staphylococci no further diphtheria bacilli could be discovered on two examinations and he was dismissed the fifth day, no longer a bacillus carrier. The second patient was a woman of 55 who had been in the hospital nearly two months; the positive findings became transformed almost at once into negative after the inoculation with staphylococci, so that she could be discharged the fifth day. The other patients were 3 children between 11 and 13 and a woman of 71; he did not wait so long for the bacilli to disappear spontaneously but inoculated them with the staphylococci at once after recovery from the diphtheria as the patients intended to travel or were imperatively needed at home. The experiment proved a complete success in every case, and he intends to make this a routine procedure when the diphtheria bacilli persist abnormally long in the throat, hoping thus to prevent the development of chronic bacillus carriers.

Books Received

All books received are acknowledged in this column and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. A selection will be made for review in the interests of our readers and as space permits.

JAHRESBERICHT ÜBER DIE FORTSCHRITTE IN DER LEHRE VON DEN PATHOGENEN MIKROORGANISMEN umfassend Bakterien, Pilze und Protozoën. Unter Mitwirkung von Fachgenossen. Herausgegeben von P. Von Baumgarten, Professor der Pathologie an der Universität Tübingen, und E. Tangl, Professor der allgemeinen und experimentellen Pathologie an der Universität Budapest. Dreiundzwanzigster Jahrgang 1907. Paper. Pp. 940. Leipzig: Verlag von S. Hirzel, 1909.

UEBER DEN EINFLUSS DER BASEDOW'SCHEN KRANKHEIT UND VERWANDTER ZUSTANDE AUF DAS LANGENWACHSTUM NEBST EINIGEN GESETZEN DER OSSIFIKATION. Aus der Poliklinik für innere Krankheiten am Serafinerlazarett in Stockholm. Von J. Holmgren, Leitendem Arzt der inneren Abteilung des Provinzialkrankenhauses zu Falun, Schweden. Paper. Pp. 244, with 2 plates. Leipzig: Druck von Metzger & Wittig, 1909.

OBSERVATIONS ON RABIES: With Special Reference to an Atrophic Form of the Disease Occurring in Animals. (Scientific Memoirs by Officers of the Medical and Sanitary Department of the Government of India. New Series, No. 36.) By Major G. Lamb, M.D., and Captain A. G. McKendrick, M.B. Paper. Pp. 34. Price, 9 pence. Calcutta: Superintendent Government Printing, India, 1909.

A COMPEND OF HISTOLOGY. (Blakiston's Quiz-Compends.) By Henry Erdmann Radasch, M.S., M.D., Associate in Histology and Embryology and Demonstrator of Visceral Anatomy in the Jefferson Medical College. Cloth. Second Edition. Pp. 350, with 107 illustrations. Price, $1 net. Philadelphia: P. Blakiston's Son & Co., 1909.

THE INSANITY LAW OF THE STATE OF NEW YORK. A compilation of Statutes Relating to the Insane and to Institutions for Their Care and Treatment; to Which are Appended the Official Orders and Regulations of the State Commission in Lunacy. By Frank P. Hoffman, 289 Clinton Avenue, Albany, N. Y. Pp. 93. Paper. 1909.

EXAMINATION OF THE URINE. A Manual for Students and Practitioners. By G. A. DeSantos Saxe, M.D., Instructor in Genito-urinary Surgery, New York Post-Graduate Medical School and Hospital. Second edition. Cloth. Pp. 448, with illustrations. Price, $1.75 net. Philadelphia: W. B. Saunders Company, 1909.

TEXT-BOOK OF MEDICAL AND PHARMACEUTICAL CHEMISTRY. By Elias H. Bartley, M.D., Professor of Chemistry, Toxicology, and Pediatrics in Long Island College Hospital. Pp. 734, with illustrations. Cloth. Price, $3 net. Philadelphia: P. Blakiston's Son & Co., 1909.

EIGHTH ANNUAL REPORT OF THE CENTRAL COMMITTEE OF THE ASSOCIATION OF THE PASTEUR INSTITUTE OF INDIA, together with the Report of the Director of the Pasteur Institute at Kasauli for the Year ending Dec. 31, 1908. Paper. Pp. 33. Lahore, 1909.

STATE OF NEW YORK STATE HOSPITALS BULLETIN. Published four times a year by authority of the State Commission in Lunacy. New Series, Vol. II, No. 3, December, 1909. Paper. Pp. 751. Price, 50 cents. Utica, N. Y.: State Hospitals Press, 1909.

A TEXT-BOOK FOR STUDENTS OF MEDICINE. By N. H. Alcock, M.D., and F. O'B. Ellison, M.D. Preface by E. H. Starling, M.D. Cloth. Pp. 139, with illustrations. Price, $1.50 net. Philadelphia: P. Blakiston's Son & Co., 1909.

THE APPROPRIATION OF PUBLIC FUNDS FOR THE PARTIAL SUPPORT OF VOLUNTARY HOSPITALS IN THE UNITED STATES AND CANADA. By S. S. Goldwater, M.D., Superintendent Mount Sinai Hospital, New York. Pp. 53.

THE COMING CONFLICT OF NATIONS, OR THE JAPANESE-AMERICAN WAR. By Ernest Hugh Fitzpatrick. Cloth. Pp. 306. Price, $2. Springfield, Ill.: H. W. Rokker, 1909.

DISEASES OF THE HEART. By James Mackenzie, M.D. Pp. 419, with illustrations. First Edition. Cloth. Price, $5.50. New York: Oxford University Press, 1910.

THE WELLCOME PHOTOGRAPHIC EXPOSURE RECORD AND DIARY. Cloth. Pp. 272. Price, 50 cents. New York: Burroughs, Wellcome & Co., 1910.

INDIVIDUAL RESPONSIBILITY. By Frank W. Patch. Pp. 37. Paper. Price, 50 cents net. New York: Moffat, Yard and Company, 1910.